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Digital Finance Ecosystem

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I. ABSTRACT

The goal of digital financial inclusion, the components of digital financial inclusion, the providers of digital financial services, the instruments for digital financial inclusion, the benefits of digital financial inclusion, the risks of digital financial inclusion, and the regulatory issues associated with digital financial inclusion are all highlighted in the paper. It also offers suggestions for how to make digital financial inclusion work for everyone's benefit. The article finishes with some policy and practise implications for the digital financial ecosystem.

Key Words : Digital Finance - Digital Financial Inclusion – AI

II. Introduction

This paper's goal is to talk about digital financial inclusion. Everything you need to know about digital financial inclusion is presented in this document. The number of digital applications that provide financial services has grown and continues to rise over time. Many of the digital apps used to provide financial services are created by technology or financial technology companies for their own use or to satisfy the needs of banks' customers.

Scholars and researchers in policy and academic circles have differing perspectives on what digital financial inclusion entails. Those who do not understand the idea of digital financial inclusion create their own abstract definitions of the term. Others see digital financial inclusion as little more than a tool for the government to monitor people online. Many others, meanwhile, continue to enrol in the digital financial system because their colleagues have done so; they have no idea what they will find in the digital financial system when they do, whether good or bad.

What does this apparent lack of understanding signify for the future of digital financial inclusion? Is there anything fresh or unique about financial inclusion through digital means? Is it possible for poor people to benefit from digital financial inclusion? And what does the future hold for digital financial inclusion? Is digital financial inclusion just

a fad that will fade away like other schemes before it? Is there a bright future for digital financial inclusion? Is it worthwhile to devote one's research career to the study of digital financial inclusion? These are just a few of the questions that have been posed.

The concept of digital financial inclusion, the purpose of digital financial inclusion, the components of digital financial inclusion, the instruments for digital financial inclusion, and the regulatory challenges related with digital financial inclusion are all addressed in this article.

The remainder of the paper is organised in the following manner. The definition of digital financial inclusion is presented in Section 1. The definitions and goals of digital financial inclusion are presented in Section 3. The components of digital financial inclusion are discussed in Section 4. The suppliers of digital financial inclusion, as well as the mechanisms for digital financial inclusion, are discussed in Section 5. Section 6 highlights several key studies on digital financial inclusion. The advantages of digital financial inclusion are discussed in Section 7. The risks and regulatory challenges of digital financial inclusion are discussed in Section 8. A discussion on how to achieve digital financial inclusion is presented in Section 9. The constraints of digital technology in fostering financial inclusion are discussed in Section 10. The conclusion is presented in Section 11.

III. Objective of the study

- Descriptively analyse the components of Digital Financial Inclusion.

A. Definition and goal of digital financial inclusion

B. Definition of digital financial inclusion

Unbanked adults are brought into the formal financial sector through digital financial inclusion, which involves offering financial services to unbanked adults through devices with a digital interface, such as a mobile phone or other digital devices. Offering digital financial services to financially excluded and underserved people, as well as employing a mobile phone or other digital device to promote access to digital financial services, is what digital financial inclusion entails (Ozili, 2020a). Using existing digital technologies, digital financial inclusion entails offering access to inexpensive formal financial services to the excluded population (Ozili, 2020b).The provision of affordable digital financial services that bring the poor into the official financial sector of the economy is known as digital financial inclusion (Ozili, 2020a).

C. Goal of digital financial inclusion

The purpose of digital financial inclusion is to provide financial services to all individuals, households, businesses, and governments through digital channels, thereby contributing to poverty reduction, increased financial intermediation, and the achievement of sustainable development goals (Raguram, 2017). The goal of digital financial inclusion is to provide a variety of digital financial services that allow people to access money, move money, grow money, save money, and reduce risk.

D. Components of digital financial inclusion

Banks, non-bank financial institutions, financial technology (Fintech) companies, and technology companies all offer digital financial services. The components of digital financial inclusion include the following:

- **Digital devices**. Customers or users of digital financial services must have a digital device, such as a smartphone, a tablet, a laptop, or a computer, that allows for the transfer of electronic data or instruments.
- **Retail agents**. Vendors or agents who have a digital device connected to a communications infrastructure are known as retail agents. Customers can convert cash into electronically stored value and back into cash via retail agents who can transmit and receive financial transaction details.
- **Additional financial services**. This refers to the additional financial services that banks, non-banks, and financial technology companies provide to their consumers. Credit goods, savings products, insurance products, investment products, mortgage products, and risk management services are just a few examples.
- **A digital transactional platform**. This is the interface between the customer and the financial institution that provides certain financial services. A bank application, digital software, an internet website, or a retail agent can all be used as a digital transactional platform.
- **The backend server**. This is the digital telecommunications infrastructure that saves data and electronically verifies consumers' financial institution details before allowing digital financial transactions to take place. It is in charge of storing and organising data, as well as ensuring that the frontend interface functions properly for users. The frontend communicates with the backend server. It sends and

receives data to be shown on the user interface on the frontend. The frontend application sends a request to the backend server when customers fill in their login information or want to make a digital transfer, and the backend server responds with information in the form of frontend code that the frontend application can comprehend and display.

- **The customers**. Individuals, corporations, and governments are the primary users of digital financial inclusion projects. Young adults, elderly adults, households, impoverished people, low-income people, middle-income people, and high-income people are among the persons. Small businesses, small and medium-sized companies (SMEs), and major corporations are among the corporations. Municipal governments, borough governments, and other government entities are examples of governments.

IV. Providers and instruments for digital financial inclusion

A. Types of digital financial services providers for digital financial inclusion

(Solomon & Lawrence, 2022)For digital financial inclusion, there are four types of digital financial service providers. The first is a full-service bank that provides a basic transactional account for digital payments, transfers, and storage of digital value via digital devices such as a mobile device, payment card, or point-of-sale (POS) terminal. A full-service bank offers an almost limitless number of digital financial services. The second option is a limited-service bank, which provides particular financial services via a mobile device, a payment card, or a point-of-sale terminal. (Solomon & Lawrence, 2022) A limited-service bank offers a small number of digital financial services, such as delivering digital financial services to a specific territory. A mobile network operator (MNO) e-money issuer is the third provider. A nonbank (non-MNO) e-money issuer is the fourth option. To function effectively, these four suppliers of digital financial services for digital financial inclusion need three components: I a digital transactional platform, (ii) an agent network, and (iii) the customer's access device. Digital financial services can be supplied to excluded and underserved people once these three components are in place.

B. Instruments for digital financial inclusion

Some tools or instruments for digital financial inclusion include:

i. e-money accounts

ii. debit cards

iii. credit cards

iv. mobile money

v. internet banking

vi. retail point of Sale (PoS) terminals

vii. agent networks

C. Important digital financial inclusion research

(Shen et al., 2020)Investigate the avenues via which China can attain financial inclusion. They discovered that financial literacy and the usage of digital financial goods, both of which are aided by the Internet's popularity, have significantly raised the level of financial inclusion in China.

(Ozili, 2020b) Using a varied worldwide sample of 79 countries, the study investigates whether high levels of financial inclusion are linked to increased financial risk. In the study, (Ozili, 2020b) The usage of digital financial services such as debit and credit cards, as well as electronic payment channels, is regulated. According to the report, increased use of debit cards, credit cards, and digital finance products helped industrialised countries minimise risk in the financial sector, but not transition economies and developing countries. In addition, in emerging nations, the adoption of digital finance products in combination with higher formal account ownership improves financial sector efficiency. The findings imply that digital financial inclusion improves the financial system as a whole, not only the excluded people.

(Solomon & Lawrence, 2022) investigate the impact of a single digital financial product, such as a debit card, on financial inclusion. They look at a natural experiment in which debit cards linked to existing savings accounts were pushed out to beneficiaries of Mexico's 'Oportunidades' cash transfer programme over time. Beneficiaries continue to receive their benefits in the savings account after receiving the debit cards, but they can access their transfers and savings at any bank's ATM. They can also use the card to make purchases at point-of-sale terminals or check their balances at any bank's ATM. They discovered that debit cards reduce transaction costs by shortening the distance between bank accounts during the natural experiment. They discovered that when transaction fees are reduced, account users change the mode of transportation they use to access their bank account, with a decrease in bus transit and an increase in walking.

(Senou et al., 2019) Examine the role of mobile phone penetration and the Internet in increasing financial inclusion utilising digital technology. From 2006 to 2017, they used statistics from the Central Bank of West African States (BCEAO) and the International Telecommunication Union (ITU). They discover that countries in the West African Economic and Monetary Union's use of mobile phones and the Internet together is a significant factor of financial inclusion.

D. Benefits of digital financial inclusion

Digital financial inclusion offers a wide range of benefits. They include:

i. Access to all types of formal financial services, such as payments, transfers, savings, credit, insurance, and securities;
ii. Encouragement of electronic payments, transfers, savings, credit, insurance, and investments;
iii. Increasing the use of government-to-person digital payments, such as conditional and unconditional cash transfers
iv. Customers and providers of digital financial services will benefit from lower digital transaction costs.
v. Allowing financial services to be adjusted to match the requirements and financial situations of poor consumers (Ozili, 2020). For example, allowing for the digital transmission of small sums of money (e.g. $1.86 cents) and the saving of small amounts of money (e.g. $0.50 cents), which would be impossible to do with cash;
vi. Cash-based transactions carry fewer chances of loss, theft, and other financial crimes;
vii. Transacting with cash and employing informal suppliers has a reduced cost.

viii. Reduced circulation of counterfeit money among the impoverished and their households;
ix. It encourages economic empowerment by allowing for asset ownership and wealth accumulation.
x. It enhances women's economic engagement.
xi. It encourages the economy to develop and stabilise by increasing aggregate expenditure and tax revenue collections.

V. Risks and regulatory issues of digital financial inclusion

A. Risks of digital financial inclusion

Digital financial inclusion poses some risks. They include:

i. In emerging and poor nations, the rising cost of digital devices (such as mobile phones and laptops) as well as the rising cost of internet connectivity might make it difficult for people to stay in the digital financial system for lengthy periods of time.

ii. Allowing non-financial firms to provide financial services may create new issues.

iii. New digital financial services will necessitate distinct regulatory regulation, potentially complicating the regulatory ecosystem.

iv. Increased digital transaction costs will disproportionately harm low-income customers.

v. Due to the use of new types of data, concerns about data privacy and security may arise.

vi. Customers who are unfamiliar with digital financial services are vulnerable to misuse and exploitation.

vii. There may be dangers associated with the agent. Rogue agents can provide desperate customers with digital financial services while ignoring existing consumer protection rules that apply to banks and other regular financial organisations.

viii. There are hazards associated with digital technology, such as inexplicable loss of Internet access, telecommunications infrastructure failure, and privacy or security breaches, all of which can cause severe disruptions in the usage of digital technology.

ix. Customers who are unfamiliar with digital financial services are vulnerable to misuse and exploitation.

There may be dangers associated with the agent. Rogue agents can provide desperate customers with digital financial services while ignoring existing consumer protection rules that apply to banks and other regular financial organisations. (Firdous Ahmad Malik, 2014) There are hazards associated with digital technology, such as inexplicable loss of Internet access, telecommunications infrastructure failure, and privacy or security breaches, all of which can cause severe disruptions in the usage of digital technology. There are other hazards linked with the use of the digital transactional platform.

B. Regulatory issues

Regulators, notably the bank and telecoms regulators, will face numerous challenges as a result of digital financial inclusion. When it comes to promoting digital financial inclusion, they will encounter new hurdles. To discover solutions to the regulatory difficulties, several regulators will need to communicate and coordinate with one another. The following are some regulatory concerns:

i. Ensuring that customers seeking retail digital financial services in remote places are not exploited by digital agent networks;

ii. The difficulties in enacting effective anti-money laundering (AML) legislation;

iii. Obstacles to enacting legislation to combat terrorism financing;

iv. Regulatory flaws in e-money and digital currency regulation;

v. Concerns about consumer protection;

vi. Payment system regulation is lax;

vii. In the digital financial ecosystem, dealing with unfair competitive practises between banks and non-bank businesses.

viii. In the market for digital financial services, there are rogue and uncontrolled digital players.

C. Digital financial inclusion: making it work

Some steps can be taken to achieve digital financial inclusion.

i. It is necessary to ensure that businesses and their consumers accept digital payments.

ii. For the objective of digital financial inclusion, develop some reliable identification mechanisms.

iii. Boost the security and trustworthiness of digital financial services;

iv. Regulators in the financial sector should encourage the expansion of Fintech firms so that they can contribute to greater digital financial inclusion.

v. In the Fintech industry, lower the entry barriers. Reduce the number of licences required for Fintech companies to enter the digital finance ecosystem;

vi. Lower the price of digital services. Digital banking services should be less expensive to develop and deliver than traditional banking services. This should result in cost reductions, making digital banking more cost-effective and accessible to those who require it.

vii. Fee structures for using a digital transactional platform should be renegotiated on a regular basis by regulators, as this would encourage more consumers to use digital financial services.

viii. Artificial intelligence can be used to eliminate systemic biases that contribute to financial exclusion in the financial system. Artificial intelligence tools can be used to remove biases from processes, systems, and decisions that marginalise unbanked adults based on their low incomes, ethnic origin, or race, with sufficient monitoring and oversight.

ix. Digital financial inclusion agents must make digital financial services accessible and easy to use.

x. Providers of digital financial services should have internal security measures in place to protect against bad actors and cybercriminals stealing data, stealing identities, or stealing money.

xi. Customers should have access to data-driven insights from digital financial services providers. Providers of digital financial services should use the vast amount of digital data at their disposal, and with permission, to educate and advise consumers on the importance of improving their saving habits, as well as the affordability of purchases before they are made.

xii. Open banking and new payment models should be embraced by regulators because they can extend the range and depth of digital financial services in ways that encourage digital financial inclusion.

D. Limitations of digital technology in promoting financial inclusion

E. It lacks the human touch

The frontend human intermediary, or the human touch, between the customer and the provider of financial services is eliminated with digital financial inclusion. People will communicate with an app that has very limited alternatives and may not have the options that customers desire instead of talking to a real person while conducting financial transactions. This will increase their desire to speak with a human representative of a financial institution, as many individuals value and treasure the ability to speak with a customer service professional who can assist them with financial transactions and handle problems. Artificial intelligence will entirely remove the human touch from a fully digitalized financial system, which means that unsophisticated users of digital financial services may not receive the human assistance they require.

F. A garbage-in-garbage-out (GIGO) approach to financial inclusion

In order to promote financial inclusion, several digital banking applications use a garbage-in-garbage-out (GIGO) mechanism. Households using digital financial services may make an error in their input data by adding extra zeros, such as sending a INR 100,000 digital transfer when the purpose was to send only INR 1,000. Due to the GIGO nature of digital transactional systems, such errors can be exceedingly expensive, as individuals or organisations may be obliged to pay a charge to reverse

transactions that were done in error, putting additional costs on individuals and corporations.

VI. Conclusion

The study revisited the digital financial inclusion agenda in order to provide in-depth understanding of what digital financial inclusion entails. The goal of digital financial inclusion, the components of digital financial inclusion, the providers of digital financial services, the instruments for digital financial inclusion, the benefits of digital financial inclusion, the risks of digital financial inclusion, and the regulatory issues associated with digital financial inclusion were all highlighted in the paper.

The debate in this paper implies that digital financial inclusion is a journey rather than a goal. There is still much work to be done, and it will necessitate the use of existing and new creative digital technologies to adapt financial services to meet the requirements of all people on the path to financial inclusion. When deciding on a national strategy for digital financial inclusion, policymakers should exercise caution. Following the selection of a strategy, the plan's effectiveness should be evaluated on a regular basis. Also, because digital financial inclusion is not without flaws, policymakers must be aware of the obstacles to digital financial inclusion as well as the limitations of digital technology in promoting financial inclusion.

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