Digital Finance and the Future of Nigerian Banking System: A Review

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Digital finance is a type of financial service that employs digital products like personal computers, the internet, mobile phones, cards linked to a digital payment system. Innovations in the digital world cannot be divorced from Nigerian financial services most notably the banking sector. Therefore, it means that banking industry cannot but embrace digital innovations in their services delivery. Hence, there is a need to review the impact of digital finance in the Nigerian banking sector. Desk research method was used to examine how innovations in the digital world could impact the future financial service delivery in the Nigerian banking sector. From the review, it was that the digital world is quickly changing and this impacts banking in all ramifications. It is recommended that the banking industry should try to keep pace with the digital innovations, for them to be able to meet up the demands of their digitally-savvy customers.

Key words: Digital finance, digital innovations, banking industry, financial services

INTRODUCTION

In this age, technological innovations are a force behind, and a critical success factor for businesses to strengthen the maturity life of product life cycle, including the financial industry (Shofawati, 2019). Digital financial services (DFS) have been adjudged to be of considerable significance to the public in that as it boosts security for their cash, and it is more convenient compared to keeping money at home or travelling with it (Michelle, 2016). The provision of DFS entails the involvement of various participants like banks and other financial institutions, mobile network operators, regulators, financial technology companies, agents, retailers and clients. Improved infrastructural facilities are vital in ensuring that DFS is user-friendly, secure, and cost-effective manner. (Shofawati, 2019). Digital disruption has the potential to shrink the role and relevance of today’s banks, and simultaneously help them create better, faster, cheaper services.
that make them an even more essential part of everyday life for institutions and individuals (Accenture Report, 2015).

The banking sector is a kingpin in the Nigerian financial system given its roles in financial intermediation as well as serving as the hub for the implementation of monetary policy of the government. Banks in its financial intermediation process assists in movement of funds from the surplus economic units to the deficit economic units which is utilised for investment purposes.

Specifically, the dramatic changes witnessed in the business arena, is unconnected with revolution ICT world evidenced by convergence of computers, advanced telecommunications, digital media, and the internet. Consequently, businesses have now become network-centric, elastic, global and firms and workers have become sophisticated consumers of space (Malecki & Moriset, 2008). Grigorian and Vlad (2013) stated further that financial innovations like ATMs, internet banking, debit and credit cards, agency banking and smartcard applications are taking place at an astronomical rate in the banking industry globally (Bett & Bogonko, 2017). Banking is an information-intensive business, and large modern day's banking business are information technology (IT) driven. The use of internet and mobile technologies in banking business have necessary implications banks’ internal operations, the financial industry’s value chain, and bank/customer relationship (Roger, Bons, Alt, Lee & Weber, 2012).

Therefore, since banking as a profession is not a charity but business, for the industry to stand the test of time in this age of digitalisation and remain in business, they cannot afford not to be digitally driven in their approach, method and service delivery. Although there is no doubt that the digital revolution in financial services has come to stay, but its effects impact on modern day banking institutions are clearly defined. Hence, this paper attempts to review how digital revolution as related to digital finance will impact on the future of the Nigerian banking industry.

LITERATURE REVIEW

Conceptual Issues

Digital finance (DF) refers to financial services provided via mobile phones, mobile wallets, individual computers, the internet, or debit cards, credit cards which are linked to a reliable digital payment system (Durai & Stella, 2019; Shofawati, 2019). It entails all products, services, technology and infrastructure that facilitate individuals and companies to have access to payments, savings, and credit facilities via the internet without the need to visit a bank branch or without dealing directly with the financial service provider (Shofawati, 2019). Similarly, digital finance has also been defined by Peake (2012) in Michelle (2016), as a prearrangement of some mixture of money-related and payment benefits that are conveyed and oversaw utilising portable or web advances and a system of specialists. It also generally refers to the far-reaching technologies (e-money, mobile money, card payments, and electronic funds transfers) available to perform financial services from a broader range of providers to a large category of recipients (Asian Development Bank, 2016) in (Michelle, 2016).

Organisation for Economic Co-operation and Development [OECD] (2018), defines digital financial services (DFS) as the financial operations using digital technology, including electronic money, mobile financial services, online financial services, i-teller and branchless banking, whether through bank or non-bank institutions (OECD, 2017 cited in OECD 2018).
According to AFI (2016) as cited in Abbasi and Weigand (2017), defines DFS as broad range of financial services, which include including payments, credit, savings, remittances, insurance and financial information, accessed and delivered through digital channels like the internet, mobile phones (both smartphones and digital feature phones), ATMs, POS terminals, NFC-enabled devices, chips, electronically enabled cards, biometric devices, tablets, phablets and any other digital system.

Discussing the components of DFS, Lauer and Lyman (2015) posit that the three critical apparatuses of any digital financial service are a digital transactional platform, retail agents, and the use by customers and agents of a device – most commonly a mobile phone to transact via the digital platform.

**Four main innovations in digital payments identified by the World Development Report [WDR] (2016)** are wrappers, mobile money systems, credit and local digital currencies, and digital currencies. Wrappers refer to an innovation that creates a digital interface with traditional payment systems like bank accounts or credit cards. Many wrappers are offered by nontraditional providers and internet intermediaries like Google Wallet and Apple Pay. Mobile money systems store money in the national currency as a credit on smart cards or a system provider’s books and enable payments online or via mobile phones. Credit and local digital currencies is an alternative unit of account not in national currency but designed to promote spending in a local economy or used as a means of exchange in computer games. Digital currencies are a new currency as well as a new decentralised payment scheme which record transactions in a publicly visible ledger; such as cryptocurrencies, which employed cryptographic techniques in transaction justification (WDR, 2016).

**Digital Financial Inclusion** refers to digital access to and use of formal financial services by excluded and underserved population (Lauer & Lyman, 2015). In other words, it is the method of confirming access to financial products and services (bank accounts, remittance and payment services, financial advisory services etc.) and adequate credit where required by helpless groups like weaker sections and low-income earners at affordable cost (Durai & Stella, 2019). Alexander (2017) pinpoints the three dimensions of financial inclusion as access to financial services, usage of financial service, and quality of financial services provided and the way in which they are delivered.

According to Atkinson and McKay (2007), the digital economy represents the pervasive use of IT (hardware, software, applications and telecommunications) in all aspects of the economy, including internal operations of business, government and non-profit organisations, transactions between organisations, and transactions between individuals, acting both as consumers and citizens, and organisations (Malecki & Moriset, 2008).

According to Alt, Beck and Smits (2018), fintech is a combination of an application domain (financial) and technology. According to Bouwman et al. (2005), as cited in Alt, Beck and Smits (2018), a technology is a manner of organising things, coordinating processes, and performing tasks more efficiently. The financial industry, on the other hand, is an industry consisting of different institutions like banks and non-bank financial institutions that provide financial services to different customers. It implies that fintech means the manner whether digital or analogue of organising things, processes, and performing tasks efficiently in the financial services industry.
Banking System started as far back as the 13th century when a group of Italian goldsmiths migrated from an Italian Province called Lombardy to settle in a part of London, today known as Lombardy Street in London. These Goldsmiths before seventeen century had evolved a system of transactions which led to the present banking system after a series of revolutions, innovations and reforms (Ekezie, 1997). It can be seen that what began with goldsmith has now grown into a full-fledged profession and industry.

Banking refers to the activities and business of banks in all ramifications. It can also be described as the business, science and art of financial intermediation which involves taking money from depositors and lending some to borrowing customers with a view of profit. It is act of trading with money. Therefore, the whole range of banking institutions, technology, regulations, etc. that function together to ensure the provision of banking and allied services to customers could be regarded as banking system. What then is banking business?

It is the law that designates a banking business. Therefore, Section 61 of the Banks and other Financial Institutions Act (BOFIA) 2004 refers to banking business as the business of receiving deposits on current accounts and similar accounts; paying of cheques drawn by customers; collection of cheques paid in by customers; provision of finance, consultancy and advisory services relating to corporate and investment matters; making or managing investment on behalf of any person; provision of insurance, marketing and capital market services, and any other business designated so by the Governor of the Central Bank of Nigeria (CBN). A bank, according to the S.2(1) of Banks and other Financial Institutions Act (BOFIA) 2004, is a body corporate, duly incorporated in Nigeria and that holds a valid banking license issued under the Act by Governor of the Central Bank of Nigeria (CBN) to carry on banking business. Adekanye (2010) asserted that in the Nigerian context, any person who carries on banking business as defined in the Banking Act is regarded as a bank. It, therefore, means that, in Nigeria, a bank is a limited liability company duly registered and incorporated by Registrar of Companies, the Corporate Affairs Commission (CAC) and at the same time obtained Banking license from Central Bank of Nigeria (CBN) to practice banking business.

Theoretical Issues

The paper reviewed four theories to understand the theoretical relationship between digital finance and financial sector, specifically the banking sector.

Innovation Diffusion Theory According to Monyoncho (2015) cited in Michelle (2016), the theory as proposed by Rogers (1995) explains how innovative ideas are passed from one generation to the other through various channels among individuals of the same social beliefs and tenets.

Theory of Financial Innovations Li and Zeng (2010) states that this theory was propounded by Silber in 1983. The theory states that the basic motive for new financial innovations is to mitigate the defects of the many related business sectors, especially office expenses, exchange costs and the deviated data (Black, 2011 as cited in Michelle, 2016). This implies that financial innovation is aimed at promoting the growth of financial institutions through improved means of doing business which lowers operating costs, improves allocation efficiency and ultimately improve the bottom-line of the financial institutions.
**Task Technology Fit (TTF) Theory** This theory contends that technology is more likely to have a positive impact on individual firm’s profitability if the capabilities of the technology (e.g. Information Communication and Technology (ICT)) match the tasks that the user must perform. Some of the factors that measure task-technology fit are quality, capability, authorisation and compatibility, ease of use/training, production timeliness, systems reliability and relationship with users. The theory further states that the success of an information system should be related to the fit between task and technology, whereby success has been related to individual profitability (Goodhue & Thompson, 2014 cited in Bett & Bogonko, 2017). Therefore, the theory acknowledges that a technology such as digital finance technology will bring about profitability if there is a fit between task and technology. It proposes use of technologies such as mobile technology platforms to run digital finance technologies to reach large market shares to increase the bank’s profitability (Bett & Bogonko, 2017). It, therefore, means here that task technology fit theory is a win-win theory because wider range of customers are aimed at being served (financial inclusion) while the profit motive of the banks and other financial institutions are not neglected at the same time. The larger public gain in form of access to and usage of quality financial services while the financial institutions (banks) also gain in form high patronage which yields greater profit for them.

**Theory of Financial Intermediation** The theory as postulated by Goldsmith (1969), Mckinnon (1973) and Shaw (1973) emphasizes the role of financial markets in the economic growth of any country. It states that the quality and quantity of financial services offered in the financial markets by the financial institutions positively impact the level of economic growth (Onwe, 2013). Accordingly, financial institutions link the surplus economic units (net savers) with the deficit economic units (borrowers) for investment. This investment is expected to lead to increase in the productive capacity of the country, thereby contributing to the gross domestic product of the country.

**BENEFITS OF DIGITAL FINANCE**

Digital finance has some benefits. It helps to overcome barriers to accessing financial services (WDR, 2016.). Lauer and Lyman (2015) also posit that digital finance has the potential to provide affordable, convenient and secure banking service to the poor. It also leads to an increase in access to finance among poor individuals.

Similarly, digital finance reduces the cost of financial intermediation for banks and fintech providers. By increasing the volume of financial transactions, fintech providers can promote economic growth. It can also lead to more excellent economic stability. It has been adjudged to lead to positive long-term impact on banking performance in terms of profitability. It also leads to improvement in the payment system, for instance, users can now make and receive payments within seconds. This could improve the welfare of the individuals and businesses that have well-funded formal bank account to implement multiple financial transactions. Consumers are also able to make quick financial decision due to digital financial technology. There is a reduction in the circulation of fake money when full-scale digital finance is adopted. It can also lead to greater control of customer’s finance. Furthermore, digital finance generates revenue to digital finance providers (Ozili, 2018).

Jaksic and Marinc (2015) also observe that information technology (IT) improves decision making and communication in the banking industry. Similarly, digital finance provides convenience, secure financial services to customers (Durai & Stella, 2019). DFS has been noted to
expand the delivery of traditional banking services to the customers through innovative technologies like internet banking, mobile-phone-enabled solutions, electronic money models and digital payment platforms. Although modern digital banking started with the automated teller machines (ATM) and phone banking, however, the internet and mobile banking offer fast and effective delivery channels not only for traditional banking products but also paved the way for new products as well. The outreach of 3G and 4G internet technology, along with the expanded uses of smart phones and tablets, has increased the demand for digital services. This market demand encourages financial institutions, software houses and other service providers to offer advanced digital banking services together with the advent of new diversified products and applications to retain the existing clients and access the unbanked population (Abbasi & Weigand, 2017).

In the same vein, digital finance makes businesses more productive, allows individuals to take advantage of opportunities in the digital world and helps streamline public sector service delivery (WDR, 2016). Other benefits of digital finance are that it helps to broaden the range of financial services providers as well as provide services that are tailored towards the unique needs of individuals and facilitate their usage. This creates opportunity to develop financial competency, confidence and experience with finance (OECD, 2018). Internet banking, as a component of financial innovation has been adjudged to reduce costs and enhance profits for banks while enriching customer convenience through the ease and rapidity with which transactions are executed (Stoica, Mehdian & Sargu, 2015).

Challenges of Digital Finance

Durai and Stella (2019) posit that though digital finance provides many benefits, but the threat of cyber-attacks is the red alert which coincides with the evolution of the economy. Hence security problems, high costs of transactions, lack of users’ knowledge of technology are holding back many users from adopting digital finance system.

Furthermore, Ozili (2018) asserts that the cost of securing customers’ data on digital channels can exceed the cost of offering digital financial services which reduces efficiency and profitability. There is also the issue of data security threat to the security and privacy of customers’ data on digital channels. There is also lack good quality and affordable digital connectivity. Digital finance is likely to benefit individuals in the urban areas with higher income more than those people in the rural areas. Furthermore, the way digital finance is introduced in a country (voluntarily or forced) can lead to voluntary financial exclusion if the population is not ready for it.

Similarly, digital data security breaches which are common can lower customers’ trust in digital finance platform. Systemic black-swan risks, when they occur, can be fatal for digital financial services around the world. Fee-based digital finance platforms will benefit high and medium-income individuals at the expense of poor and low-income individuals who cannot afford the associated transaction costs. Many policy and regulatory environments are not enabling full-scale digital finance (Ozili, 2018).

Digital finance relies excessively on internet connectivity, which excludes individuals that do not have internet connectivity. Similarly, digital finance does not serve individuals that do not have mobile phone or digital devices. The entry of non-traditional players in the digital finance system comes to its own risk in that this poses new challenges for policy, regulation and supervision. For
instance, the ease of transferring funds across the world usually anonymously through the use of cryptocurrency might increase illicit financial flows (WDR, 2016). International Finance Corporation (2017) also states that low level of formal services encouraged cash dominated transactions, low income and financial literacy level, as well underdeveloped technology and venture capital ecosystem in addition to relatively weak infrastructure have been some of the challenges which banks and Fintech companies face in emerging markets.

**Digital Finance: Stylised Facts in Nigeria**

Financial technology is in small measure transforming the delivery of financial services in around the world and in Nigeria. Though, it was observed that the FinTech revolution may not be rapid in Africa due to the level of internet penetration but surprisingly, FinTech is gaining ground day in day out as the digital means of financial services is dominating the financial transaction space. The dominance of the digital finance gained more acceptability due to its financial inclusion capability. Considering, CBN Statistical Bulletin (2018), it is observed that e-payment mode is becoming more and more dominance in the payment modes. Figure 1 showed the payment in billion Naira between the period of 2009 to 2018. The traditional mode is payment through cheque and the electronic mode involved payment through the following means: ATM, POS, Web Pay, Mobile Pay, NIP, NEFT, M-Cash, E-Bills Pay, Remita, NAPS, and Central Pay. Computation of NIP and NEFT started in the year 2012, while that of m-Cash, E-Bills Pay, Remita, NAPS and Central Pay started in the 2017. Until 2012, when the populace discovered that this form of digital finance had come to stay, together with some other benefits attached to it. Then, the traditional mode of payment started declining and over the years, it has declined considerably from 97.35 per cent in 2009 to 3.79 per cent in 2018; while the electronic form of payment increased considerably from 2.15 per cent in 2009 to 96.21 per cent in 2018. This is a simple pointer that electronic form of payment will continue to dominate this space of financial services, while the traditional mode of payment may continue to decline and probably go into extinction overtime by having no one to make use of it as the prefer mode of payment. As a matter of fact, total of 127,649.94 billion Naira were paid through the electronic means in the 2018 while the traditional mode only accounted for 5,035.33 billion Naira of the total of 132,685.27 billion Naira paid. This development is in tandem with the proposition of Lim, Lakhoua, and Mazzawi (2016) that African will finally achieve universal electronic financial services, in which Nigeria is on the path already. It was equally noted that mobile money has reinforced a fundamental change in the delivery of financial services in sub-Saharan Africa of which Nigeria is one (Sy, Maino, Massara, Saiz, & Sharma, 2019). Digital financing is a disruptive innovative anywhere in the world, for its generative potential and Nigeria is not an exception. Thereby, it becomes a fact that digital financing (in relation to wrappers and enablers as earlier reviewed) will dominance the financial services in the future even as it is happening now.
Empirical Review

Shofawati (2019)’s investigation of the role of digital finance to strengthen financial inclusion and the growth of small and medium enterprises (SMEs) in Indonesia concluded that, the availability of digital finance could create financial inclusion, so the access for the financing is more easily especially for the SMEs.

Bett and Bogonko (2017) assert that digital finance machineries have been implemented and diffused quicker than any technology in history, fluctuating the way people interact with each other and the way banks deportment business with their customers' devices. The study also concluded that digital finance technologies had aided an growth in financial returns. In another study, Dinh, Le and Le (2015) also found that internet banking (which is an aspect of digital finance) influence on banks’ profitability through an increase in revenue from service activities.

From the review of digital finance and its consequence for financial inclusion and financial firmness, Ozili (2018) found that digital finance has a positive impact for financial inclusion. There is no doubt about it that consumers of financial services are shifting from traditional channels to digital ones and the multi-channel model is the popular trend now in the banking industry (Dinh, Le & Le 2015). Karlan et al., (2016) also concluded that digital finance can significantly enhance client well-beings both right as well as through enabling a comprehensive network.

However, in Kenya, Michelle (2016) found that digital financial services (agency banking, telephone banking and internet banking) negatively and not significantly impact on financial inclusion in the banking sector. This was because banks in Kenya adopted digital finance to reduce operating cost and not as a tool to foster financial inclusion.

Onwe (2013) specifically examined the role of information technology (IT) in the banking sector in Nigeria and found that IT facilitates financial intermediation through price discount and appropriate delivery of financial services. In another related study, Jaksic and Marine (2015) investigated the role of IT on the future of banking and posit that drastic changes are imminent in banking due to the advent of Fintech startups and involvement of information technology companies in traditional banking businesses. With this competition, though the economics of
banking have not changed but there is a need for banks to tailor its products to digitally-inclined customers’ preferences and requirements. In the same vein, Durai and Stella (2019) observe that digital finance plays a vital role in the daily activities of people. They, therefore, conclude that digital finance (internet banking, moveable banking, moveable wallets, credit cards, debit cards) has a significant impact on financial inclusion.

Accenture (2015) has found three behaviour about fintech that financial provider believe could allow them to reimagine themselves numerically. They are openness to innovation, co-innovation and venture investment. Open innovation may involve the engagement of exterior technology results, knowledge assets and resources early on in an invention process. This also entails opening up the organisation’s intellectual property (IP), assets and expertise to outside innovators to help breed new ideas, change organisational culture, identify and attract new skills, and discover new areas for growth. Co-innovation is also called collaboration. The survey reveals that digitally reimagined scenario for the future is desirable where the addressable market for financial service develops through complementary alliances between different players. Venture investing is at the heart of the start-up innovation model. Banks and other established financial services firms are taking this route to try and generate innovation for their business.

DIGITAL FINANCIAL INNOVATIONS AND THE NIGERIAN BANKING SECTOR:

THE FUTURE IS HERE

The banking industry is a crucial sector in the Nigerian economy and has experienced some significant changes in the recent time. This is due partly to outburst of technological innovations. These innovations according to (Goddard, Molyneux & Wilson, 2014 cited in Bett & Bagonko, 2017), remain to create windows of prospects for growth as well as challenges for both bank administrators to remain money-making in the highly viable environment.

The future of banking in Nigeria is mixed in terms of outlook. Mixed in the sense that the industry has to develop at a higher rate technologically in order to meet up or possibly outpace the rate of outburst of technological innovations in the nation and the world at large. Financial innovations which include ATM, phone banking, internet banking, debit cards, credit cards, agency banking, smart cards applications, POS technology; as well other technological innovations like the Internet of Things (IoT), cloud computing, big data, blockchain technology, nanotechnology, artificial intelligence, quantum computing, data analytics, etc, will continue to impact bank customers relationship (either directly or indirectly), thereby transforming the relationship from the traditional simple model to a more sophisticated relationship. Hence, these and many innovations will either be blessings or curses to the banking industry depending on how the industry handles and harnesses these innovations. Corroborating further, Lauer and Lyman (2015) posit that due to momentous advances in the availability and affordability offered by financial services, millions of deprived customers are moving from completely cash-based transactions to formal financial services. Furthermore, emphasizing the significance of the digitalisation, Gates (2001) asserts that the use of digital tools to re-invent the way of doing business by companies is a must if they will remain unbeaten in the years to come (Onwe, 2013).

Hence, the Nigerian banking sector needs to prepare to embrace both the benefits and challenges of digitisation of financial services with a view to harnessing the bundle of opportunities there-from as well as preparing to overcome the wind of challenges of the digital revolution blowing over the banking sector in specific and the monetary system in general. No wonder, Weidmann
(2017) states that over two decades, Bill Gates commented on the need for banking and not banks. Though we still have banks existing and will continue to do but events in recent times have indicated that non-banks can equally provide banking services. This is unconnected, at least with the considerable advances in the information and communication technology (ICT) world, which opens up windows of opportunities for designing and delivery of financial services. Therefore, digital technologies and fintech have the potential to exert fundamental changes in the market for financial services with their innovative business models.

From the review of the empirical studies, it is clear that information technology, especially financial technologies and innovations are an indispensable part of the financial system and its impacts have been mostly positive but is sufficient to say that that future outlook of the banking sector in Nigeria depends on how the industry braces up to exploit the opportunities these innovations bring as well combat the challenges there-from.

CONCLUSION AND RECOMMENDATIONS

Digital finance is a type of financial service that employs digital products like individual computers, the internet, mobile phones, cards linked to a digital payment system. Innovations in the digital world cannot be divorced from Nigerian financial system, most notably the banking sector. It, therefore, means that banking industry cannot but embrace digital innovations in their services delivery. Digital finance has given a new shape to the banking industry and will continue to do so in the foreseeable future. The digital world is proliferating, and this impacts banking in all ramifications. Digital finance is useful to individuals, business firms as well as the public sector. However, digital finance as an innovation has come with its own challenges. We, therefore, recommend as follows:

a) The government should strengthen a robust regulatory framework on digital financial services in Nigeria
b) The banking industry should try to keep pace with the digital innovations, for them to be able to meet up the demands of their digitally savvy customers;
c) For banks to harness the goldmine in technology, there is need for a holistic approach to the business of banking through rigorous training of its human resources especially in information technology and financial engineering;
d) Collaboration, investment, as well as co-operation with financial technology companies home and abroad by the banking sector, is sine qua non for the sector to live up to the expectations of highly digitalised customers of financial services in the future.
e) More research and investigations should be carried by scholars so as to suggest policy solutions to problems inherent in digital financial services delivery with a view to improving the banking and other institutions in the financial system.

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