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EVOLUTION OF FINANCIAL TECHNOLOGY AND FUTURE OF BANKING IN NIGERIA

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Abstract

This paper examines the impact of Financial Technology (FinTech) evolution on the future of Banking in Nigeria. To carry out this work, we reviewed the Finance Industry, the Educational System, and the new Technological Revolution that is shifting finance from the traditional training we give students that can no longer provide the banking services of the future and the need to adopt a new model. In addition, we examined the problem of shortage of talents with the right skills to integrate new technology into existing systems within our financial industries disrupted by technology and the need to have a re-think of the educational system. We also examined how FinTech is shaping the future of banking and the gaps to be covered through fintech education. We summarized various FinTech applications into four major categories: i) payment, ii) advisory service, iii) financing, and iv) compliance. In addition, we also reviewed what are the emerging technologies in FinTech and how they could possibly enhance business values. We believe that this study could serve as a reference for researchers, particularly from a technology background, on how to identify and develop new FinTech solutions for Nigeria. We concluded this paper by proposing educational insight for the 21st century for our school curriculum. We recommend among others, the teaching of FinTech and fourth industrial revolution concepts as a subject in secondary schools throughout the Country.

Keywords*:* Finance, Education, Technology, Banking, Applications

1. Introduction

The term FinTech is derived by joining two words which are financial services and digital technology. Fintech prompts the use of digital technology in coming up with innovative products and services such as mobile payments, alternative finance, online banking, big data, and overall financial management (Sironi, 2016).

FinTech is a cross-disciplinary subject that combines finance, technology management, and innovation management (Leong & Sung 2018). This definition can further be elaborated as an innovative idea that improves financial services processes by proposing technology solutions according to different business situations, while the ideas could also lead to new business models or even new businesses.

Above mentioned understanding of FinTech can also provide new points of view for evaluating the business model. A real-world example is UBER. By using the definition,

Uber can be considered a FinTech business because the company provides non-traditional (i.e., innovative ideas) transportation services by using technology (i.e., mobile apps) to improve ordering (financial services) taxi services.

However, there is lack of related works on providing a general accepted definition of what is FinTech. Moreover, we found the public understanding on what is FinTech as very weak. We had even met some educators, financial participators, and users who unintentionally resisted FinTech without realizing how their jobs or daily life will be affected by FinTech in the short future.

FinTech can serve as an innovative reference in helping businesses to rethink their business models or even suggest new businesses. In the following sections, we will further discuss how to create business value in a FinTech way

In this paper, we reviewed the innovative reference of FinTech in the educational and financial models in order to suggest a new way forward for helping businesses in Nigeria to rethink, but with a special focus on the educational and financial institutions.

This paper is organized as follows. Section 2. reviews how to prepare for the FinTech revolution. Section 3. provides a methodology. Section 4. is the conclusion of this paper.

2. How?

"To prepare for the FinTech Revolution, we need to start in Schools"

Finance rules the world, but soon technology will rule finance. If you're not aware of how technology is already transforming finance, then you are behind, and if you are not preparing the next generation of leaders, you are never going to catch up as FinTech moves from an upstart movement into the mainstream. Therefore, preparing students for the future of finance is vital.

The finance industry is shifting dramatically as new technology innovation takes over. The world of finance will no longer be brick mortar banks or investment firms working off spreadsheets and in-person advertisements. Customers will increasingly demand the ability to bank from anywhere on their phones, shift investment plans easily, and more.

2.1 Business Model?

"We now have Smartphone headquarters i.e., Office fewer organizations"

Within financial institutions; technology like Blockchain, automation Artificial Intelligence; and the evolution of lending data are creating new business models to adapt quickly. Technology advancements in this sector are approaching quickly and aggressively. The market experiences a sharp increase in 2018, with a global investment topping $57.9 billion, and it's expected to grow even further.

Chief executive officers (CEO) of Organizations are feeling the pressure to keep up with the pace of change. About 70% of global CEOs are concerned about the speed of change in technology in the financial sector.

2.2 Finance Education and Technology

"Finance Students must now become Tech Students"

There is a growing issue of shortage of talents with the right skills to integrate new technology into existing systems within industries disrupted by technology. This is a big issue in finance already and will become a greater problem as fintech presence increases.

To address this global talent shortage within finance: we need to start building the necessary skills at a young age. This will grow the next generation of financial professionals who will help propel the industry into the future.

To prepare for the future of finance, governments and businesses should invest in domestic talents by partnering with educational institutions to develop fintech skills. Incorporating the right education is key to preparing students for the financial world they will eventually enter.

Luckily, the millennial generation is already primed to handle this shift in the sector gracefully as many grew up with smart intelligent devices, connected homes, and online learning, but Schools need to also support intentionally; by adopting their curriculum, particularly, their financial curriculum to position current students as the next cutting-edge innovators in finance. The National University Commission (NUC) has recently introduced a course on Electronic Banking for undergraduate final year students of Banking and Finance. This for me should rather be introduced in the primary school curriculum to drive the objective early enough.

Globally programs are beginning to adapt to this need, with Asia being a region to watch. Experts predict that Asia will emerge as "A key center of technology-driven innovation" in the financial sector. As a leader in innovation and education, we can look to Singapore to see how a Country and institutions within it can promote ready students for the future of finance.

2.2.1 Lesson from Singapore?

"Singapore is leading the way in FinTech Education" (Gupta &Xia 2018).

Singapore is a prime example of government and institutional support for creating programs that prepare the workforce to tackle the impending revolution. It is working on becoming the top fintech hub in the world and betting on education programs to get there. The monetary authorities in Singapore have committed to invest $167 million to provide support to reach this goal over a five-year period.

As a leader in how businesses can invest in this goal, Singapore-based DBS bank is partnering with schools in the city-state to provide smart watches for primary school students. This technology introduces students to digital payments and basic tracking capabilities like counting steps. Familiarizing students with such technology is an investment in preparing them for the finance world of tomorrow through innovative programs.

At the college level, institutions are introducing in their curriculums FinTech as a subject in itself and incorporating expertise from businesses to enrich the program.

2.2.2. Way forward

There is therefore an urgent need for collaboration between colleges and top technology companies to help develop a fintech curriculum for schools and colleges in Nigeria as others are doing globally

Organizing FinTech summits are also a big incubator for enhancing education in the field. Singapore hosts a global summit devoted to addressing FinTech education needs. And tech-driven finance businesses like DBS banks send talent to come up with solutions to better incorporate technology into financial education. Something of this nature should urgently be replication in Nigeria and in Africa at large.

Ultimately, investing in youth is imperative for a Country's success. Countries and businesses should look to Singapore for inspiration, as it sits at the top of the human capital index.

Sooner, rather than later, the entire finance sector landscape will look different as digital becomes mainstream through fintech innovations. The industry has major disruption on the horizon, with blockchain improving transactional systems, smartphone banking expanding, data management becoming even more of a priority, and more. With the help of government, businesses, and schools investing in progress and adapting curricula, students will be more and more prepared for the future of the financial world.

2.2.3 Why are we bothered about education and technological development?

Again, the question needs to be asked:

- Education for what?
- Have we designed our education curriculum to make us importers and consumers of technology or to enable us to transfer technology or develop technology?
- Why have the majority of Nigerian not benefited from globalization?

The answers to these questions will surely suggest that our education is not responding to the need of society and there is a crisis and as such, we need a re-think

2.3 How FinTech is Shaping the Future of Banking

FinTech is one of the biggest revolutions in financial history. The FinTech revolution which is going to transform banking; will have winners and losers and will have a significant impact on the financial sector, especially, those who work in the financial industries and education industries that produce the bankers of tomorrow (Arslanian, 2016).

It is argued that there is a causal link between the educational system and the financial system. The bankers of the future will be very different from the bankers of today with very different personalities, backgrounds, and skill sets.

Arslanian (2016) asserts that Fintech is the innovative use of technology in the design and delivery of financial services. It is transforming the banking role with things from artificial intelligence, peer-to-peer lending, big data, blockchain, crowdfunding, smart contract, digital payment, and robot advisor (chatbots) just to name a few. As technology evolves, banks were busy concentrating on the new rules, guidelines, and penalties laid out after the financial crises that led to global the recession of 2008; while innovations were left unattended.

Some of the most game-changing technology that has transformed the way we live occur during this period and have become an everyday part of our life. Think about the iPhone, Uber, WhatsApp, Reach Out applications (apps), etc. This resulted in creating a gap between what a bank offers and what you as a customer expect, especially from a user experience and convenience perspective; that gap is what the fintech industries are tapping right now.

That gap is so big that even non-traditional banking players decided to jump in and capture this opportunity mainly technology, for example,

- Facebook has already secured over fifty (50) regulatory licenses in the US alone that will allow Facebook users to transfer money via their messenger apps.
- Amazon recently experimented with offering students loans from its platform.
- Alibaba financial apps have already launched a money market fund that has become the third biggest money market fund in the world dislodging an incumbent that has been doing it for decades. That fund has more than 150 million investors.
- Recently the Central Bank of Nigeria has granted banking licenses to some telecommunication providers in Nigeria like MTN and Airtel.

Some mobile apps, not only allow you to buy insurance products or invest directly from your smartphones but to also book your next doctor's appointment, order f taxi, donate to charity, or even find a date without leaving the apps. Robo advisory platforms offer consumers asset management solutions that are not only more transparent in what they charge you, but, substantially cheap.

In fact, the financial platform of the future is not going to be your traditional banks but the technology firms (Arslanian, 2016). My four years old daughter will likely open her first account with Facebook, apple, or one of our local tech firms.

Presently, there are thousands of FinTech startups all over the world that are now offering products that used to be previously offered by traditional banks. Peer-to-peer lending platforms now offer consumers alternatives to loans previously offered by traditional banks.

These newcomers have the ability to choose what type of banking they want to get involved in, obviously, the most profitable part. It is very unlikely to see a FinTech startup wanting to be a deposit-taking institution. They are very happy to control the front-end i.e., the consumer-facing part, and leave the boring back-end to the traditional banks: things like posting settlement, reconciliation, or regulatory reporting, and this, may create a new banking model of the future. With the traditional banks handling the back-end, basically becoming commoditized utility providers.

2.3.1 Benefits to Financial System

One of the most important developments this FinTech revolution is going to bring is financial inclusion. Currently, in the world as of 2018, we have more than 2 billion people who are unbanked. These are individuals who have no access to bank accounts, no way to borrow money for college or so ever.

According to the World Bank, in the last 5years, more than a 700million people have moved from unbanked to being banked. Artificial intelligence power chatbots that mimic human conversation in messaging apps have been tested to replace call centers you are probably used to.

Biometric data and voice recognition tools are being tested to replace not only the password but tokens you probably hate. Others are connecting FinTech to the internet of things and wearable technology, thereby, embedding banking in our daily lives, so that in the future, you will not even need to worry about it.

You can imagine your car notifying your insurer about your premium. Some banks will survive this evolution and be able to imbibe these innovations but many will not and this will have grave consequences. Citibank estimates that over the next 10 years, 30 percent of bank jobs will disappear, some other experts put the number as high as 50 percent; one banking job out of two will disappear in the next ten years. This will have serious consequences because, this will also affect all the related economies around; the law firms, accounting firms, hotels, restaurants, etc.

Some new jobs will be created in the FinTech industry but a substantially smaller number and these are very different jobs with different skill-sets. These are jobs for creative designers, and programmers and not for traders and compliant officers. New regulations are needed for the FinTech industry to survive in order to face a new reality.

2.4 Education, Technology, and Banking

There is therefore a need for a fundamental change in mindset; the most important change will be the way we train the next generation of talents. We must start teaching FinTech as a subject in primary schools. We need to embed in the curriculum; courses on design thinking, coding, and development in every primary school because the bankers of the future, who will shape the future of this industry are not going to be our traditional bankers but rather designers, programmers, and creative thinkers.

2.4.1 Scenarios

According to Hernández de Cos (2019), we expect five stylized and non-mutually exclusive scenarios in which FinTech could impact banks with a particular focus on:

i. Who manages the customer relationship or interface; and
ii. Who provides the services and takes the risk? These comprise the following:

- Scenario 1: "BETTER BANKS": Incumbent banks digitized and modernized themselves to retain the customer relationship and core banking services, leveraging enabling technologies to change their current business models. For example, new technologies such as biometry, chatbots or artificial intelligence could help banks maintain a value-added remote customer relationship. Banks could further innovate payment services and digitise the lending process through more efficient interfaces and processing tools.

- Scenario 2: “NEW BANK”: In this scenario, incumbents are unable to survive the wave of technology-enabled disruption, and are replaced by new technology-driven banks (e.g., "neo-banks”), with full-service “built-for-digital” banking platforms. We already have so many around the world.
- Scenario 3:” DISTRIBUTED BANK”: A third scenario considers the possibility of financial services becoming increasingly modularised. Incumbents are able to carve out enough of a niche to survive, but other financial service providers “plug and play” on the digital customer interface. For example, the adoption by customers of mobile wallets developed by third-party technology companies, such as Android Pay, Apple Pay or Samsung Pay, is an example of the distributed bank scenario.
- Scenario 4:” RELEGATED BANK”: Incumbent banks become commoditized service providers, and cede the direct customer relationship to other financial service providers. FinTech and big tech companies use front-end customer platforms to offer a variety of financial services from a diverse group of providers. In contrast, banks would be relegated to providing only commoditized functions such as operational processes and risk management, while other service providers would own the customer relationship.
- Scenario5:” DISINTERMEDIATED BANK”: The final scenario would see incumbent banks becoming irrelevant because there is no longer a need for balance sheet intermediation, as customers interact directly with individual financial service providers. In this scenario, customers may have a more direct say in choosing the services and the provider, rather than sourcing such services through an intermediary bank. One example is peer to peer lending platforms, where individual customers can directly take on the role of the lender or the borrower.

2.4.2 How to Create Business Value Using FinTech Education

Leong and Sung (2018) opined that, there are various applications of FinTech education and those application can be classified under four major operational business processes:

i) FinTech education on Payments

In payment aspects, cashless payment is the key development trend. More and more companies have developed related payment solutions. For example, in Nigeria, we have Pay Stack, Flutter wave, and Kuda. More payment solutions allow users to make a seamless e-payment process, under this topic (i.e., payment), the emerging direction for future studies includes data transmission technologies, security issues, user experiences, data analytic techniques, free value offer, call to action, email list etc.

However, future studies related to e-payment solutions should focus on how to improve the process in terms of convenience, efficiency, traceability or security.

Nicoletti (2017) opined that underpayment, blockchain, digital currencies such as bitcoin, should be an emerging topic to be widely studied in schools. In summary, from the business point of view, the new developments of related technologies and studies should, directly or indirectly, improve business process, such as enhancing sales, improving automation efficiency, improving customers retention and others.

ii) FinTech education on Advisory Service

Advisory service refers to the provision of suggestions to users according to a set of rules and criteria. It covers all kinds of related services, such as investment advice, asset management consultation, insurance service, customer support, and management decision makings.

The direction for teaching and studies under this topic (advisory service) should be on developments of internet of things, wearable computers, advanced sensors, artificial intelligence, machine learning, big data, algorithms, advanced algorithms, and automation.

A sub-topic under advisory service, Robo-advisor, is now an emerging topic in the investment sector. Robo-advisor serves as financial adviser that provides automated financial advice on investment management for clients using advanced technologies, such as artificial intelligence, big data and machine learning. We already have application for insurance services that involve using wearable computers (e.g., hand belt with digital device) to send users' health data to insurance company, so that personalized insurance package could be designed.

iii) FinTech education on Financing

Financing refers to any acts of obtaining funds for business activities from different sources. There are various traditional sources of finance, such as family, bank borrowing, profit, venture capital, franchising, government funds, stock market, debenture, bonds, and others.

The developments of FinTech provide many new alternative financing ways, that is, a financing channel that is outside the traditional systems.

- Crowdfunding
- Smart Contract
- Initial Coin Offering

Education on financing and financing solutions should focus on how to improve the process in terms of personalization, information sharing, lowering transaction costs, speed, effectiveness, flexibility, automation, users' experiences and any kinds of financial decision making.

iv) FinTech education on Compliance

Compliance refers to conforming to a set of regulations, such as specifications, policy, standard or law. Using technology to enhance regulatory processes is referred to as RegTech (Regulatory Technology) (Schuettel, 2017).

Education and studies related to compliance should be on how to improve the effectiveness of compliance processes, how to use technologies to conduct compliance works that could not be easily done by human in traditional ways. Presently according to McCance (2017) Ernst and

Young (EY), one of the four biggest audit firms in the world, has revealed plans to expand its use of drones to improve the audit process.

Considering their relevance, robot, drone, mobile device, Computer supported cooperative work etc. should be the emerging direction of future teaching and studies.

3. Methodology

"Education and Banking reform for 21st Century for School Curriculum"

There is an urgent need for a review of the curriculum of schools to enhance financial institutions' preparedness in the 21st century in the following subject areas in order to be adequately prepared for the future:

- Smart Chip Technology
- Biometric Sensors
- Online Transactions
- Omni-Channel & Branchless banking
- Customer Service Chatbots
- Artificial Intelligence
- Machine Learning
- Crypto assets
- E-Wallets
- Mobile Banking and
- Mobile Computing\Cloud Computing

4. Conclusion and Recommendations

The advent of cutting-edge technologies coupled with customers' demand for a safe and more user-friendly banking experience has led banks and financial services to readily adoption of FinTech finance technology.

We need a fundamental change in mindset, the most important change is the way we train the next generation of talents. We must start teaching FinTech and fourth industrial revolution concepts as a subject in secondary schools throughout the Country. We need to urgently imbed in the curriculum; courses on design thinking, innovative management, coding, technology management, and development in any school because the bankers of the future, who will shape the future of this industry are not going to be our traditional bankers but rather designers, programmers, and creative thinkers.

We recommend that, the advent of FinTech should be our long-awaited trigger for financial/educational revolution in Nigeria; that, with a sincere and profoundly proactive synergy between the public sector, private sector, government and other stakeholders; driving this needed educational disruption in how we educate and prepare our young talents for the future, so that Nigeria and indeed Africa will not be left behind.

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