

Factors for Sustainable Operations in the FinTech Industry.  
A Survey of Nigerian Users, Providers and Regulators.

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## DECLARATION SHEET

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## **ABSTRACT**

This research looks at the success and failure rates of FinTech (Financial Technology) industries in Nigeria, and the factors responsible for its sustainability. FinTech global investment now makes up a multi-billion-dollar industry. The Financial sector, which is the backbone of economic growth in Nigeria is dominated by start-ups that offer technological solutions to products and services. The suggested approach enables the researcher to explore the complexity of the FinTech ecosystem, the stakeholders' inter-relations, and critical success factors responsible for achieving and maintaining success in the industry. This also allows a better understanding of the different factors of success and failure, which have been generally identified as regulatory support, customer centricity, stakeholders' partnership with incumbents, technology (including innovation), infrastructure, business environment and trust, as well as poor business plans, poor management, poor location, lack of inventory, uncontrolled growth, poor financial control, lack of funds or experience, lack of a strategic plan and many others.

Consequently, the study reviews the global FinTech, with emphasis on countries and hubs that have been ranked successful in terms of FinTech operations, both in the developed and emerging markets which allows for the correlation of these business success and failure factors with the growth and sustainability of the industry in such countries.

The research draws upon 20 interviews (unstructured, semi-structured, and highly structured) with high profile stakeholders of the FinTech industry, across the different components of the ecosystem. NVivo 11 was used to assist in the thematic analysis of the transcribed audios. This helped to identify, from different perspectives, the challenges faced by stakeholders in Nigeria. This, therefore, makes this research a mix of the current practices, perception, and respective roles concerning the issues of FinTech success and sustainability in Nigeria. Three basic themes (with several sub-themes) emerged from the empirical study as areas of most concern to FinTech sustainability in Nigeria: Financial Inclusion, Sustainability and, Regulation and Compliance.

The outcome of this research is an outline of a robust framework proposed at addressing the factors affecting sustainable operations in the Nigerian FinTech industry. As a way of building the framework, solutions have been proposed under the studied themes listed above that were identified as impediments to success. This study outcome is also a useful addition to the body of knowledge and academic research that pertains to financial technology growth and sustainability in Nigeria and globally.

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## ACRONYMS

AI	Artificial Intelligence
AMCON	Asset Management Corporation of Nigeria
ATM	Automated Teller Machine
BVN	Biometric Verification Number
B2B	Business-to-Business
CBN	Central Bank of Nigeria
CSF	Critical Success Factor
DMB	Deposit Money Bank
EFInA	Enhancing Financial Innovation & Access
EMDE	Emerging Markets and Developing Economies
FCA	Financial Conduct Authority
FinTech	Financial Technology
FSB	Financial Stability Board
GDP	Gross Domestic Product
GDPR	General Data Protection Regulation
GFC	Global Financial Crisis
ICT	Information and Communication Technology
IMF	International Monetary Fund
IoT	Internet of Things
IT	Information Technology
KYC	Know Your Customer
MAS	Monetary Authority of Singapore
M&A	Mergers and Acquisitions
NBS	Nigeria's Bureau of Statistics
NCC	Nigerian Communications Commission
NDIC	Nigerian Deposit Insurance Company
NFC	Near Field Communication
NFIS	National Financial Inclusion Strategy
NIBSS	Nigerian Inter-Bank Settlement System

NSE	The Nigerian Stock Exchange
OPEC	Organization of Petroleum Exporting Countries
OTC	Over the Counter
PE	Private Equity
POS	Point Of Sale
RegTech	Regulatory Technology
SEC	Security and Exchange Commission
QR	Quick Reference
VAT	Value Added Tax
VC	Venture Capital

## DEFINITION OF TERMS

**FinTech:** Defines the convergence of technology and innovative business models with the potentials of transforming the financial service industry.

**FinTech service providers:** Custodians and providers of financial technology services to the industry, such as technology vendors or investors.

**Regulator:** The principal supervising unit of the financial institution.

**Financial Institution:** This is the organization that is involved in dealing with monetary transactions which include currency exchange, deposits, loans, and investments.

**Financing:** This is the act of making funds available for business activities, either by investing or making a purchase.

**Asset Management:** When an account is opened and managed by a financial institution where its activities that might not be available for the average investor. These include checking writing privileges, margin loans, automatic cash sweep into a money market fund, and brokerage services.

**Technological Vendors:** Commonly refers to suppliers of products, goods, and services to other companies.

**Incubators:** Organizations or firms that engage in the business of nurturing early-stage companies through developmental stages till the time that the company has sufficient human, physical and financial resources to function alone.

**Accelerators:** Organizations whose primary function is to connect start-ups with guidance, mentors, resources, and funding. They are normally designed to be short-term.

**Financial Inclusion:** This means that individuals and businesses have access to affordable and useful financial products and services that meet their needs such as savings, payments, credit, and insurance-delivered in a sustainable way.

**Legacy companies:** Traditional or old-time providers of financial services

**Macroeconomics:** A segment of economics that deals with the behavior of an aggregate economy, including GDP, growth rate, inflation, national income, and changes in unemployment.

**Ecosystem:** A network of organizations that includes distributors, consumers, regulators, competitors, government agencies -and so on- that are involved in the delivery of specified service or product through cooperation and competition.

**Regulatory framework:** the existence of the essential infrastructure that is needed to support the direction, control, or implementation of an adopted course of action, principle, rule, or law.

**Collaborative FinTech:** Partner with or trade their services to the incumbents to meet customer needs when they sense a high threat of disruption from the new FinTech providers.

**Competitive FinTech:** New FinTech companies competing with incumbent institutions.

**Unbanked adults:** Term for adults that have no bank accounts and do not use banks in any capacity.

**Cryptocurrency:**

A Digital currency designed to serve as a medium of exchange where coins' ownership records are being stored in a computerized database using secured cryptography for records of transactions.

**Bitcoin:** A cryptocurrency that is not managed by financial institutions such as banks, but the transactions are recorded in the blockchain that has records of every single transaction that takes place, and its public

**Regulatory sandbox:** Characteristically summarized in writing and published, it's a regulatory approach that permits live time-bound testing of innovations under a regulator's oversight.

**Disruptive Technology:** Innovations causing significant alterations in the way that industries, consumers, or businesses operate.

**Venture Capital:** A form of early-stage investment in innovative businesses with high or strong growth potentials.

**Private Equity:** Typically, investments into mature companies that have been in operation for years.

**Blockchain:** A growing list of records known as blocks that are linked with the use of cryptography.

# **CHAPTER 1: INTRODUCTION**

# **INTRODUCTION**

## **1.1 Introduction**

The past few years have been developmental for the Nigerian financial and technology sector, which saw the advent of several FinTech start-ups and investments. This extended to include several forms of technological inventions in the financial segment that changed the way business is done. The FinTech sector is also the most crowded technology sector in Nigeria much so that virtually all the commercial banks have thrown their support at one FinTech platform or the other, knowing that it is the future of that sector.

There are, however, significant challenges to overcome for the growing FinTech sector in Nigeria to improve and subsequently place Nigeria on the global map as a hub. The right combination of capital investments, regulatory framework, technical skills, government incentives, and entrepreneurial outlook are the required catalysts to facilitate such establishments.

This study seeks to provide an extensive overview of up-to-date trends and the growth drivers that have in one way or the other affected the industry in the past. It also seeks to highlight critical success factors and serve as a guide in developing a framework that ensures sustainable operations in the Nigerian FinTech industry and establishing its position in the global FinTech landscape.

## **1.2 Background of Study**

### **1.2.1 FinTech**

As an emerging technical term, Fintech, derived from the phrases ‘Financial’ and ‘Technology’, is considered a unique taxonomy which basically describes the financial technology sector in a wide range of operations for organizations or enterprises. This is mainly targeted at addressing the improvement of service quality by using Information Technology (IT) applications (Gai et al., 2018). In other words, FinTech denotes companies that combine and provide financial services through modern innovative technology where the borderline amid the pair is blurred out such that it is tough to point out where technology stops, and financial services begin (Koffi, 2016). FinTech is a swift and dynamic industry where several business models emerge daily.

Development of FinTech is seen as an advance on technological breakthroughs in multiple areas such as big data (Yin and Gai, 2015), trust management (Zhang et al., 2016, Abawajy et al., 2016), mobile networks (Wen et al., 2013; Zhang et al., 2013; Zhang and Soong, 2004; Gai et al., 2016a), and cloud computing (Castiglione et al., 2015; Gai et al., 2018) amongst other. A significantly increased expectation of the use of FinTech has presented a great challenge in its planning and adoption, complicated integrated systems, intercrossed realms, and distinctive demands. Therefore, a precise and up-to-date awareness of FinTech has an imperative demand for both professionals and academics (Gai et al., 2018).

It is impossible to define FinTech based on legal documents or legislation. This is because FinTech companies are subject to various kinds of legal regulatory requirements due to varying business models and diversity in products and services offered. The basic aim of this industry is to attract customers with more user-friendly, transparent, automated, and efficient products and services than the currently available ones. (EBF 2015; MacKenzie, 2015)

Technology and innovation have brought about a drastic transformation in traditional financial services. Globally, statistics have shown that the total investment value into FinTech companies between 2010 and 2019 peaked at 135.7 billion dollars (Statista, 2020). These innovators use technology tools to incorporate seamless financial services to both the banked and unbanked populace (Fortnum et al., 2017).

### **1.2.2 Segments of FinTech**

The FinTech industry comprises of start-ups, legacy providers, and technology companies. The start-ups offer fresh technology-driven resolutions and financial services at a lower cost using technology. The Legacy companies either acquire or work with the start-ups to promote innovation and the technology companies make the payment tools available (PWC, 2015). These categories are basically found under four major segments according to their distinguishing business models. These are distinguished based on their involvement in different traditional value-adding sectors of a general bank, and they include Financing, Asset Management, Payments and other FinTech sectors which include assortment of organizations that perform various finance and/or technology functions. This categorization is discussed in detail in the next chapter (Dorfleitner & Hornuf, 2016).

### **1.2.3 FinTech in Nigeria**

FinTech is presently the new slogan around the globe in which Nigeria is not an exemption. The consolidation of finance and technology has resulted in a turn from the old-style traditional way of carrying out business and consummating financial transactions. New financial solution providers emerge daily, raising the expectations around the growth of FinTech in Nigeria.

There has been a massive increase of FinTech start-ups, investments, and incubators in the past few years in Nigeria, and investments surpassed \$200 million mark (Fortnum et al., 2017).

The FinTech companies are known as 'market disruptors' because their operations deviate from the traditional method of commercial banking and trade. These traditional banks are also not left out in adopting this revolution as it basically supports less of human intervention.

Although Nigeria's growth trend is still far behind other global equals, its potential has been deemed as high due to a robust talent hire conduit and low-cost tech workforce. The Nigerian economy, largely cash-driven, has been positively responding to the FinTech opportunity, partly established by the exponential rise in average monthly mobile money operations from \$5 million in 2011 to \$142.8 million in 2016. This growth has been credited to a rise in e-commerce and smartphone dissemination (Fortnum et al., 2017).

### **1.2.4 FinTech Nigeria: Growth Factors and Potentials.**

The success and growth of any FinTech hub is determined by a unified ecosystem. A successful FinTech ecosystem is defined by the way all the market participants engage, connect, and share ideas across, as well as identifying and converting prospects into business. The elements of the ecosystem include Government, regulators, investors, start-ups, technological vendors, financial institutions, users, educational/research institutes, incubators, accelerators and innovation labs (Fortnum et al., 2017).

The right combination of several factors controlled by some elements is responsible for the growth of FinTech. The elements include growth in capital investments, availability of right technical skills, government policies, innovative and entrepreneurial mindset.

Nigeria's unbanked population stands at about 40%, and the FinTech sector capitalizes on the chances offered by this population. Regardless of being Africa's largest economy and the continent's most populated country, Nigeria was not quick to implement FinTech services unlike



other African countries such as Kenya and South Africa. Notwithstanding, Nigeria witnessed a record increase in these services in the recent past.

The FinTech sector in Nigeria has the likelihood of becoming one of the most significant leaders in Africa's invention path. It has also been predicted that FinTech is the future of the Nigerian financial sector. Given the country's population size, size of the financially excluded population, and depth of mobile usage penetration, there lies a big opportunity for FinTech, both start-ups, and traditional/existing institutions to do exploits. In an estimate by McKinsey Global Institute, exploiting digital finance and reducing cash transactions could raise Nigeria's GDP by 12.4%. (Drummer et al, 2016).

### **1.3 Rationale of Research**

FinTech companies, even the most disruptive ones, fail. This is particularly common in Africa where regulations and infrastructure are not as good as in the developed countries.

Given its status: rising population and large economy, Nigeria remains the largest income opportunity in Africa. There are various factors which contribute to the growth and sustainability of the FinTech ecosystem. These include good infrastructure, data security socio-cultural issues and a valid regulatory framework (Fortnum et al., 2017).

In the centre of recession, increasing unemployment and inflation, policymakers in Nigeria are on the lookout for new drivers, not only for digital financing services as seen to be the basic tool for financial inclusion promotion but also for growth stimulation (Daramola, 2017).

In 2012, National Financial Inclusion Strategy (NFIS) was launched, with the main purpose of dropping the financial inclusion rate through restructurings and targeted programmes such as small and medium enterprises, incentive schemes to promote the use of electronic payments, development of mobile payment systems, finance support and others. Four years into its execution, the population with a National Identification Number, the number needed to classify these results, stood at 7.5%, as against a set target of 59% (Daramola, 2017). According to records, 9% of transactions ranging from real estate to vehicle purchases are processed in cash.

Nigeria still struggles with the challenges of inadequate bank outlets, poor infrastructure (power, telecommunications, and roads), poor financial literacy, poor network connection, and all these impede the growth of services to the un(der)served populace.

The non-existence of a standard regulatory framework for the FinTech operatives has left both the consumers and providers vulnerable. And as other FinTech sub-sectors are facing the non-existence of a standard framework, the payment sector is probably being over-regulated. Nevertheless, under this regulation, mobile money is yet to attain its peak potentials, and this is attributable to the fact that only banks and licensed corporate bodies are authorized to undertake such transactions.

Other FinTech sub-sectors, such as virtual currency and bitcoin amongst others, that can prove to be valuable for the economy are yet to receive acceptance in Nigeria. Consequently, the Central Bank of Nigeria (CBN) had issued a warning to the public because of the anonymity of virtual transaction and their being potential targets for terrorism and money laundering.

#### **1.4 Aim and Objectives of Research**

FinTech has produced a major force in the financial sector. With latest innovations such as Robotics, Artificial Intelligence, Peer-to-Peer lending, Biometric Applications and so many more taking the lead to creating a bigger revolution in the sector, the non-existence of a standard regulatory framework for the FinTech operatives in Nigeria has left both the consumers and providers vulnerable. This research is aimed at evaluating the critical success factors of FinTech as it applies to Nigeria, and by reviewing the needs of the sector, aims to develop a framework that will ensure sustainable operations in the industry.

With the above-mentioned aim, the related objectives are outlined below:

1. Evaluate and critically review and works of literature on FinTech businesses, their functions, and their basic operations, specifically in Nigeria.
2. Study previous research and identify critical factors responsible for successes and failures of the general FinTech industry.
3. Recommend an effective framework for sustainable operations in the FinTech industry in Nigeria.

#### **1.5 Research Questions**

The following questions are expected to be answered at the end of this research.

1. What are the functions and basic operations of FinTech, specifically in Nigeria?

2. What are the factors responsible for the success and failures of global FinTech industry operations?
3. What framework can be recommended to bring sustainability to FinTech operations in Nigeria?

## **1.6 Introduction to Methodology**

This research aims to develop a working hypothesis, and as such, a flexible approach is required. By its nature, it is intended to be studied as an exploratory research, and the methodology is detailed in chapter 3 of this work. As there is no theory in place at the onset, it shall be based on natural data collection which includes interviewing different categories of FinTech operators and the use of secondary data. The approach taken for this research will be inductive, a bottom-up approach, where facts are meant to emerge from flexible in-depth interviews, where data is collected, then common themes identified in line with building a theory.

As the main aim of the research is to examine the FinTech sector in Nigeria and to recommend a sustainable operation framework, the Interpretivist theory is adopted for the study, with the hope of highlighting the variance in their independent thoughts and actions. And in seeking to define the relationship between the variables of this research, a qualitative approach will be applied. This is to align the design, philosophy, and strategy. Unstructured interviews will first be conducted on key members of the organization to understand the sorts of questions to be used on subsequent participants. A list of topics or questions known as the interview guide will be used. This will be followed by semi-structured interviews where the questions will be derived from the responses of the unstructured interviews which were targeted at producing standardized and structured responses to standard questions to minimize differences in responses. Finally, structured interviews will be conducted with the intent of generalizing from a sample to a population.

This research is qualitative and as such qualitative data collection and analysis will be used. As this research is targeted at an in-depth exploration of a key phenomenon and not generalizing a population, in as much as aligning it to the research approach taken, the non-probability sampling method will be used. To achieve the aim of this study, in-depth interviews must be conducted where selecting the interview participants will be purposefully or intentionally

centered on an iterative process also known as purposeful sampling which is a method of non-probability sampling. Subsequently, qualitative analysis tools will be used for the analysis of data, which will include content analysis (both quantitative and qualitative), and thematic analysis.

## **1.7 Structure of Report.**

This research comprises of 5 chapters.

Chapter 1 provides a basic introduction to the study and presents the aims, objectives, and research questions. It also shows a summary of the methodology used.

An overall understanding of the FinTech sector's emergence and growth and how it has changed our way of life is necessary to better appreciate this research. This will be detailed in Chapter 2 with a literature review and discussions of vital contributions in the area.

Chapter 3 will present the methodology applied to the research, data collection, and data analysis techniques used for this research. It outlines the archival resources studied in developing the trend of FinTech development and categorizes the interviews and observations led by the researcher to gather data about old and current happenings as related to FinTech.

Chapter 4 presents the results of the research. This will contain the key findings of the research, a brief description of data sets, followed by an in-depth discussion of each result. This chapter will also revisit early conceptual model and evaluate its value in this study.

Chapter 5, the final chapter, will summarize and further elaborate on the managerial implications of the findings, provide a conclusion, recommendation, the managerial implications of the outcome, and the limitations and of this research. Proposals of significant modifications to the model will be made, and suggestions for possible future work on this study will also be contained in this chapter.

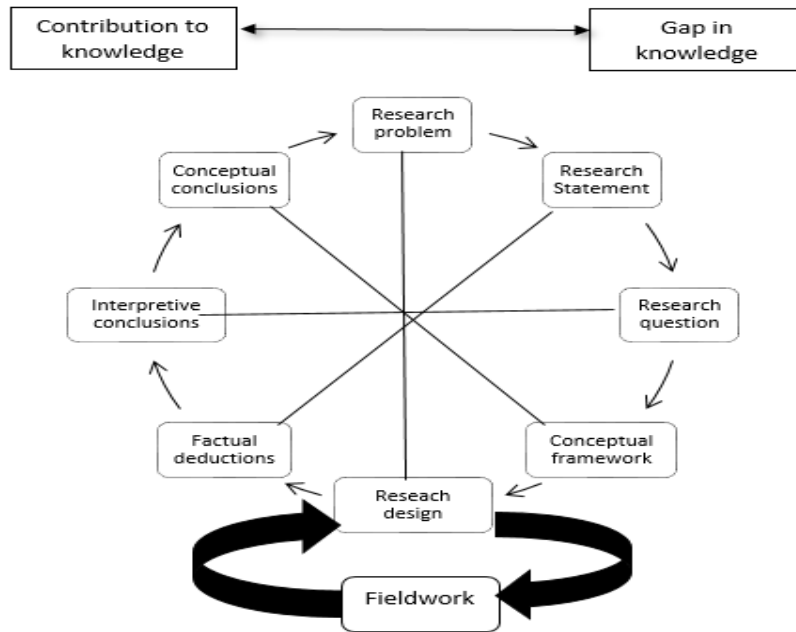


Figure 1: Visualizing the research process (Source: Author)

A summary of the research project is seen in the diagram above which shows the intertwined relationship between the gap of knowledge at the early stage of the research and the findings which are aimed at contributing to knowledge.

## 1.8 Summary

In this chapter, the general background of the study was discussed. To understand FinTech in its entirety, the total global investment and the various FinTech segments that account for such were briefly introduced. The state of FinTech in the Nigerian space, which is the major cause of this study was also briefly introduced, sighting the major reasons why it has become pertinent to undertake this study. The rationale for this research is also a sub-section of this chapter where the factors that have been responsible for the growth and sustainability of the industry were elaborated. In so doing, to the aims and objective behind the study were identified, which are meant to be achieved with the emergent answers to the research questions also mentioned in this chapter.

This section also concisely discussed the methodology best suited for this research. The research aims to develop a working hypothesis, and as such, a flexible approach is required. By its nature,

it is intended to be studied as an exploratory research. To achieve the aim of this study, in-depth interviews must be conducted and by the choices of data collection and analysis methods, qualitative research approach was used.

The final part of this chapter discussed the structure of the report, where a brief of all the chapters were mentioned, which summarily presents the research process.

## **CHAPTER 2: LITERATURE REVIEW**

## **LITERATURE REVIEW**

### **2.1 Introduction**

Some few years ago names such as Paypal, OnDeck, Zopa, Wealthfront, and Square were not an attraction within the financial industry. But in today's world, the financial technology (FinTech) sector is one of the fastest growing in the financial industry. FinTech has become a dominant theme in both developing and developed countries. With a global rise in investment from \$US51 billion in 2014 to over \$US135 billion in 2019 (Pollari and Ruddenklau, 2020), the speedy upsurge of FinTech symbolizes the digital transformation of the industry, with substantial implications for the business, customers, and the government. Business and government leaders' rhetorics have also fueled this phenomenon, emphasizing the importance of innovation and growth, while challenging the opportunities created by new business models and digital disruption.

While more individuals are striving to be innovative, quite a few attain their target levels. Failure is not just common amongst the start-ups in the industry but can also catch up with the existing technology companies and legacy service providers.

This review is going to focus on the evolvement of FinTech, with emphasis on the Nigerian landscape, its operations under various sub-sectors, and then the drivers or factors responsible for the sustainability of the industry.

### **2.2 Nigeria.**

Nigeria, a country located on the west coast of Africa and lies within the coordinates 10 00N and 8 00 E. It has a total area of 923, 768 sq. km with land covering about 910,768 sq. km and water about 13,000 sq. km (Figure 2.2.1). In comparison, it is said to be four times bigger than the United Kingdom as seen in Figure 2.2.2 below, and slightly more than twice the size of California. Nigeria is bordered by Niger to the north, Cameroun and Chad to the east, the Benin Republic to the west, and by the Gulf of Guinea or the Atlantic Ocean.

Nigeria's capital is Abuja, in the Federal Capital Territory, created by decree in 1976. Nonetheless, Lagos state, which is the former capital, still maintains its position as the country's leader in commercial and industrial activities. Modern Nigeria dates from 1914 when the Northern and Southern protectorates from the British rule were joined. It became an independent



nation on October 1, 1960 and adopted a republican constitution but chose to remain a member of the Commonwealth. (Africa: Nigeria — The World Factbook - Central Intelligence Agency, 2020).



Figure 2.2.1: Map of Nigeria (Africa: Nigeria — The World Factbook - Central Intelligence Agency, 2020)

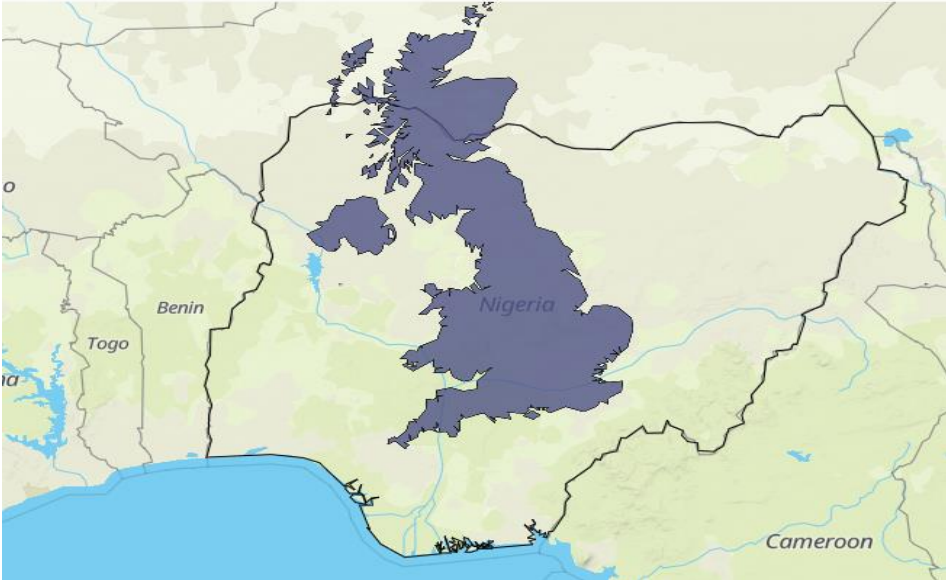


Figure 2.2.2 Nigeria and United Kingdom size comparison (MyLifeElsewhere, 2020)

### **2.2.1 Climate and Temperature**

Nigeria has diverse geography: a tropical climate with varying dry and rainy seasons which are dependent on the location, a savannah climate characterized by both wet and dry seasons is found in the north and west, with a predominantly dry and hot season interrupted by little precipitation in the far north. It is wet and hot in the southeast for most of the year, and dryer in the southwest and farther inland. In general, the rainy season declines from the south to the north where it could last from March to November in the south (3,000mm/year) and June to September in the North 500mm/year. (Falola et. Al, 2018).

Humidity and temperature remain rather constant throughout the year in the south, with significant changes in the north. The mean maximum/minimum temperatures in Lagos and Port Harcourt are 90° F (32°C)/ 72°F (22°C) and 91° F (33°C)/ 68°F (20°C) respectively. Maiduguri, a north-eastern city can get as hot as 104° F (40°C) in the months of April and May, with likely frosting at night, and as low as 54° F (12°C) during the dry harmattan season.

### **2.2.2 Population, Diversity, and Age Distribution.**

Nigeria's current population stands at 190,632,261 and has been projected to hit 392 million in 2050, with a population growth rate of 2.43% (2017 estimate). The most diverse of Nigeria's features is the people. Over 250 ethnic groups have been identified in Nigeria with the most influential being Hausa and Fulani 29%, Yoruba 21%, Igbo 18%, Ijaw 10%, and Kanuri 4%. Each group considers its territory to be its own, by right of first occupancy and inheritance. The age distribution is given as follows, and represented in the Figures below:

1-14 years:	42.54%
15-24 years:	19.81%
25-54 years:	30.74%
55-64 years:	4.04%
65 years and above:	3.26%

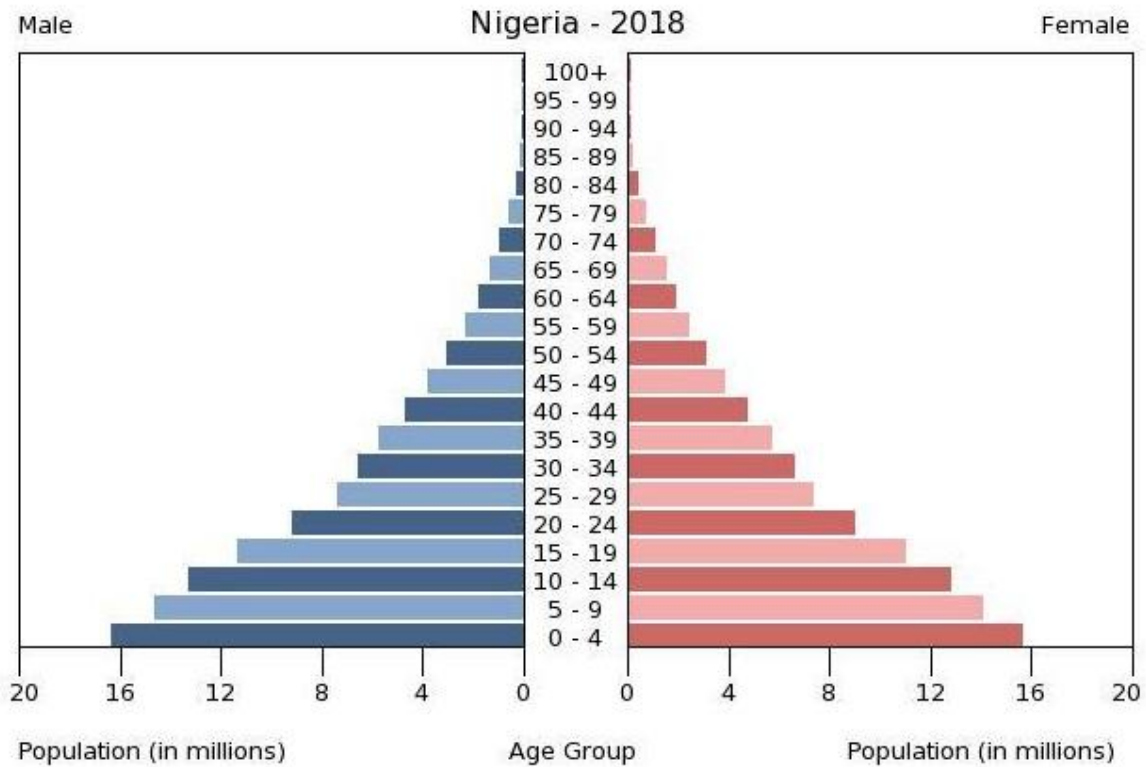


Figure 2.2.3: Population pyramid (The World Factbook, 2019).

**Age breakdown (2015)**

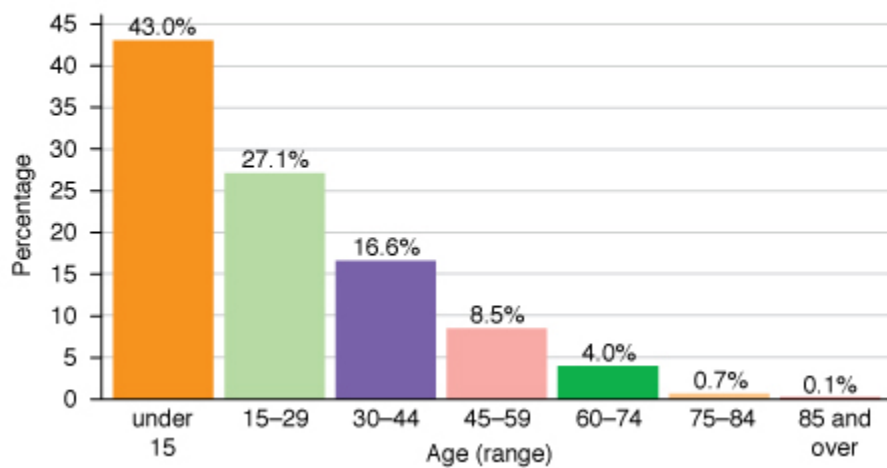


Figure 2.2.4: Nigerian population distribution by age (Falola et. al, 2018).

### 2.2.3 Economy

Nigerian economy is one of the largest economies in Africa. With up to 78% agricultural land (The World Factbook, 2018), agriculture was the major source of the economy until the 1960s, and since then, the petroleum industry became the backbone of the economy. The series of the oil price increase from 1973 led to rapid economic growth in construction, transportation, manufacturing, and government services. This, in turn, led to a massive influx of rural people into the larger cities or urban dwellings, stagnating the agricultural practices that had initially enriched the nation. By 1975, Nigeria was compelled to import basic commodities such as cassava and rice to meet the demands of the fast-growing population. (Falola et. Al, 2018). Although a reasonable population remained in farming, production was inadequate, requiring increasingly expensive imports, Nigeria heavily relies on oil as its primary source of government revenue and foreign exchange earnings.

After the 2008 GFC, banks were asked to recapitalize and since then, Nigeria's economic growth has been through telecommunications, agriculture, and services (The World Factbook, 2018). Nigeria's oil production has been on the decline since 2012 due to security risks and regulatory constraints that have limited new investments in the oil and gas sector.

**Agriculture:** Agriculture is the means of livelihood for about two-thirds of the Nigerian population., although most are small-scale subsistence farmers that produce just a little surplus for sale. There are four broad sectors in agriculture: livestock, crop production, fishing and forestry. Crop production, which is further divided into cash crop production for exports (include groundnuts (peanuts), cotton and oil palm, cacao, and rubber), and food crops (include cassava, yam, cowpea, corn, sorghum, and millet) remains the largest sector which accounts for about 87.6% of the segment's total output. This is followed by livestock, fishing and forestry with 8.1%, 3.2% and 1.1%. Fishing became an important source following the loss of livestock (cattle and sheep) to the recurring drought in the Sahel that began since in the 1970s.

Agriculture's GDP contribution was an average of 24% between 2013 and 2019, making it the nation's largest sector in Nigeria as well as the largest employer of labour as it employs over 36% of the country's labour force. Below is the empirical representation of the country's Agriculture's contribution to GDP.

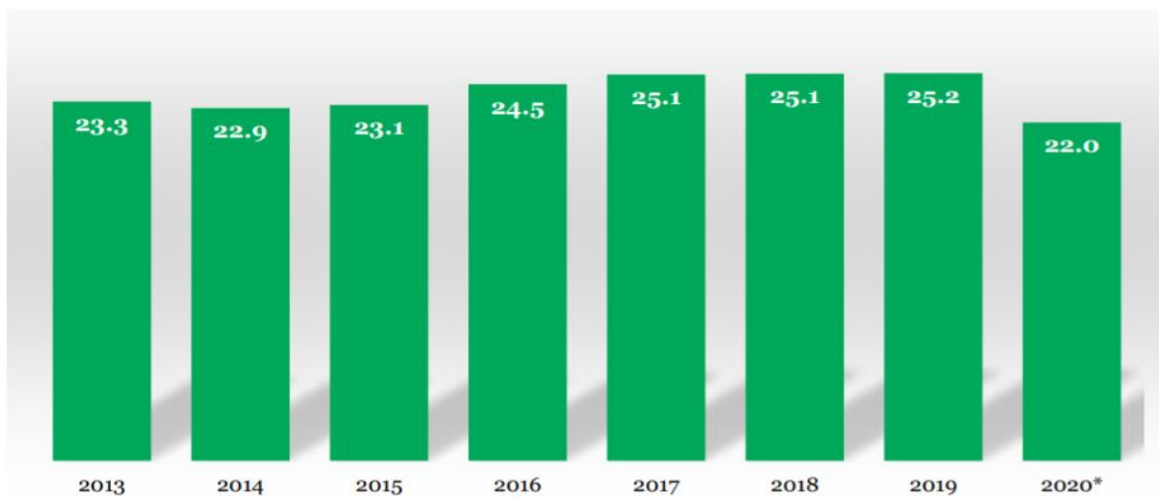


Figure 2.2.5: Agriculture's contribution to GDP (Oyaniran, 2020).

After the years of boom, a deficit in Nigeria's agriculture trade started and then continued to broaden amid the government's push for self-sufficiency. Exports declined by about 11% from £550 million in 2018 to £490 million in 2019, while imports increased from £1.55 billion to £1.75 billion during the same period, the highest ever recorded. In four years (2016–2019), Nigeria's cumulative agricultural imports between 2016 and 2019 stood at N3.35 trillion, four times higher than the agricultural export of N803 billion within the same period.

PwC (2019) had, between 2016 and 2019, recorded Nigerian cumulative agricultural imports at £6 Billion, which is four times higher than exports (£1.46 billion) of the same period.

**Resource mining:** Resource mining remains the fastest growing and most important activity of the economy, and as such, the petroleum industry accounts for virtually all export earnings, reflecting the rise to fame of crude oil production. Nigeria has been an active member of the Organization of Petroleum Exporting Countries, OPEC, since 1971. Nigeria has a variety of both renewable and non-renewable resources, some of which are yet to be tapped. Amongst the natural resources found aside crude oil which is the most important source of government revenue and foreign exchange, are natural gas, tin, ore, petroleum, limestone, lead, and zinc.

For the past few decades, crude oil has been the key source of energy, revenue and foreign exchange for the country's economy. With a crude oil production capacity of approximately 2.5 million barrels/day, Nigeria is said to be Africa's largest producer and ranks as the sixth largest oil producing country in the world. Several studies that revealed crude oil consumption and

export as contributing highly to the improvement of the economy recommended that the government implement policies to encourage diversification in Nigeria's economic development (Odularu, 2008). In their paper 'Economic diversification in Nigeria, any role for solid mineral development?', Ahungwa et al., (2014) showed that solid minerals, which have the capability of contributing significantly to the Nigerian economy, has been neglected and therefore advocates for diversification of the economy through other investments (Tonuchi and Onyebuchi, 2019).

**Manufacturing:** The manufacturing sector could basically be assumed to have a huge potential for economic development as a result of abundant labour force as well as agrarian nature of the economy. The revenue generated from the mining enabled the federal government in establishing industries such as Aladia and Ajaokuta Steel companies, petrochemical plants in Kaduna, Port-Harcourt and Abuja, pulp and paper mills in Iwopin Oku and Iboku, and a smelting company at Ikot Abasi. These, and other large-scale manufacturing such as textiles, tobacco, and cement were controlled by foreign investors and mostly depended on imported raw materials. The manufacturing company suffered a lifetime set-back with the ban on a wide range of raw materials in 1987, although the ban was later withdrawn.

Several traditional salt and soap making workshops, located in the rural areas, surfaced after a near-collapse of the Nigerian economy in 1983 where the average wage earner could not afford factory-made salt or soap. Other trades include pottery making, wood carving, and raffia works. Similarly, many programmes were introduced by the government aimed at speeding performance of the manufacturing industry in terms of value-added to GDP, employment generation amongst others. Most of these programmes were directed towards their contribution towards entrepreneurship among the youth population in a bid to solve the unemployment problem of the country. Despite the number of policies developed by the government overtime, the challenge remains: industries still perform poorly in terms of contribution to GDP, value addition, revenue generation and many more (Tonuchi and Onyebuchi, 2019).

Perhaps owing to the difficulties involved in developing a productivity index, there is little or no data on productivity levels in the manufacturing sector, and the Nigerian economy in general. According to an ad hoc study in 1989, there was just a little rise in productivity, while in another study, food and basic metal industries had only 30% of the respondents saying they has a rise in productivity, 11% recorded nil growth and 57% reported declining growth in productivity levels

(Sese and Oluleye, 2018). The Manufacturers Association of Nigeria (MAN) confirmed that there was a negative general trend in the industry in 1989 and the situation has worsened since then (Anyanwu, 2000).

**Finance:** A well-established financial system boosts investment by categorizing and funding good business opportunities, enabling trade, mobilizing saving, hedging and diversifying risks and many more, which results in increase in economic activities in the country (Adelakun, 2011). Although the financial sector cannot on its own determine the economic growth, it plays a crucial role in stimulating industrial and economic development (World Bank, 2013; Albert et al., 2021). For Nigeria, studying the relationship between economic growth and financial development is delicate, considering that the country's financial sector has witnessed several reforms within a little time (Albert et al., 2021).

The Nigerian currency is Naira, which has been devalued several times since 1980. Central Bank of Nigeria, the apex bank has branches in all the states and is responsible for the issuance of guidelines to all merchant and commercial banks in the country. All foreign banks were compelled to sell 60% of their shares to Nigerians and 1980 saw the emergence of several banks after the financial sector was liberalized. Due to instability, the government was forced to rescue some of the banks, and this also led to privatization and closure of banks that violated the regulations.

Two major banking reforms recently took place: 2004 and 2009, each with a significant effect on the economy. The 2004 reforms focused on mergers and acquisitions that resulted from the recapitalization of banks from N2 billion (\$5.54million) to N25 billion (\$69,250,000 million) (Sanusi, 2011). This brought the number of banks from 89 to 25. In 2009, the Asset Management Corporation of Nigeria, AMCON was established. Its main aim was to acquire commercial banks' non-performing loans financed by N50 billion (\$138,500,000) CBN fund and 0.3% of participating commercial bank's total assets. The reform also addressed the issue of excessive bank interest by creating non-interest banks (Sanusi, 2011).

The Nigerian Stock Exchange (NSE) established in 1960, and as of March 2017, has 176 listed companies with a total market capitalization of N8.5 trillion (\$2,770,000,000.00). The NSE is the third-largest stock exchange in Africa (Nigerian Stock Exchange, 2018).

**Gross Domestic Product:** Nigeria, the largest economy in Africa, is a mixed economy, middle-income, and an emerging market with growing financial services, technology, communication, and manufacturing sectors.

The GDP in Nigeria increased by 2.6% YoY in December 2019, following a growth of 2.3% in the previous quarter. In terms of nominal GDP, Nigeria reached \$129.1 billion in December 2019. (CEIC 2020)

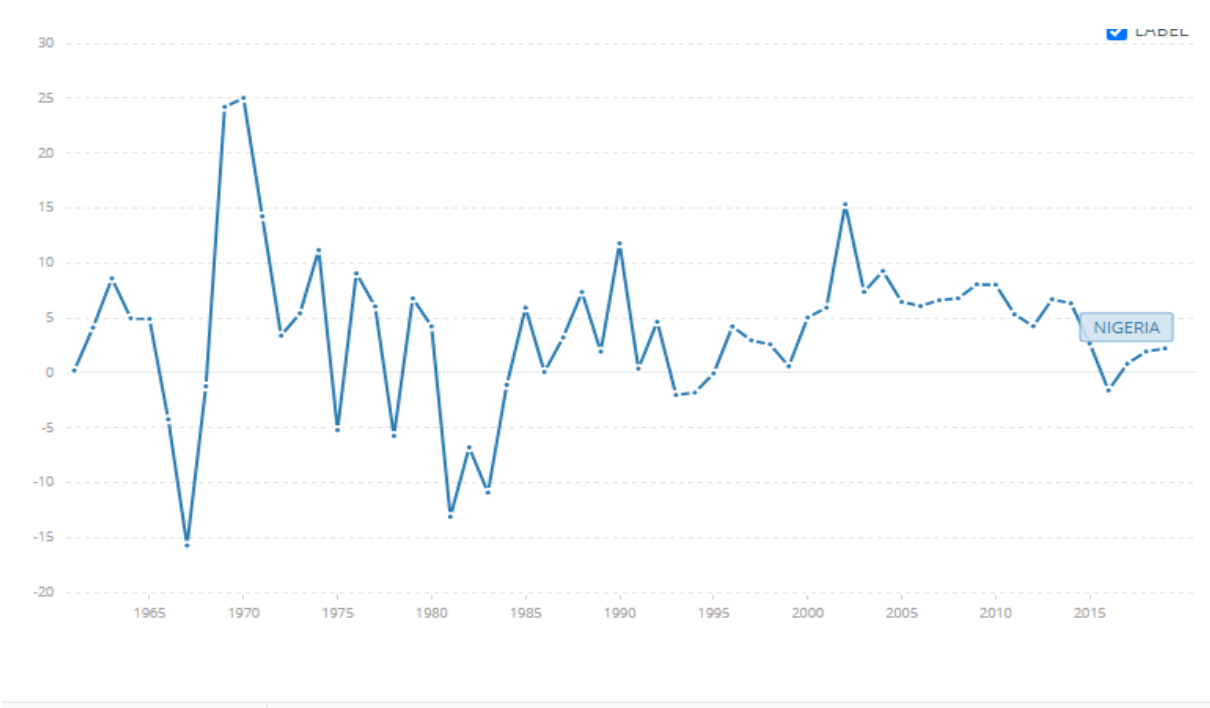


Figure 2.2.6: Nigerian GDP growth from 1960 to 2019 (World Bank Group, 2020).

Recent data from the World Bank shows the growth rate from 2011 to 2018. The economy saw a growth of 0.83% in 2017, the first rise since it began a dip in 2014.



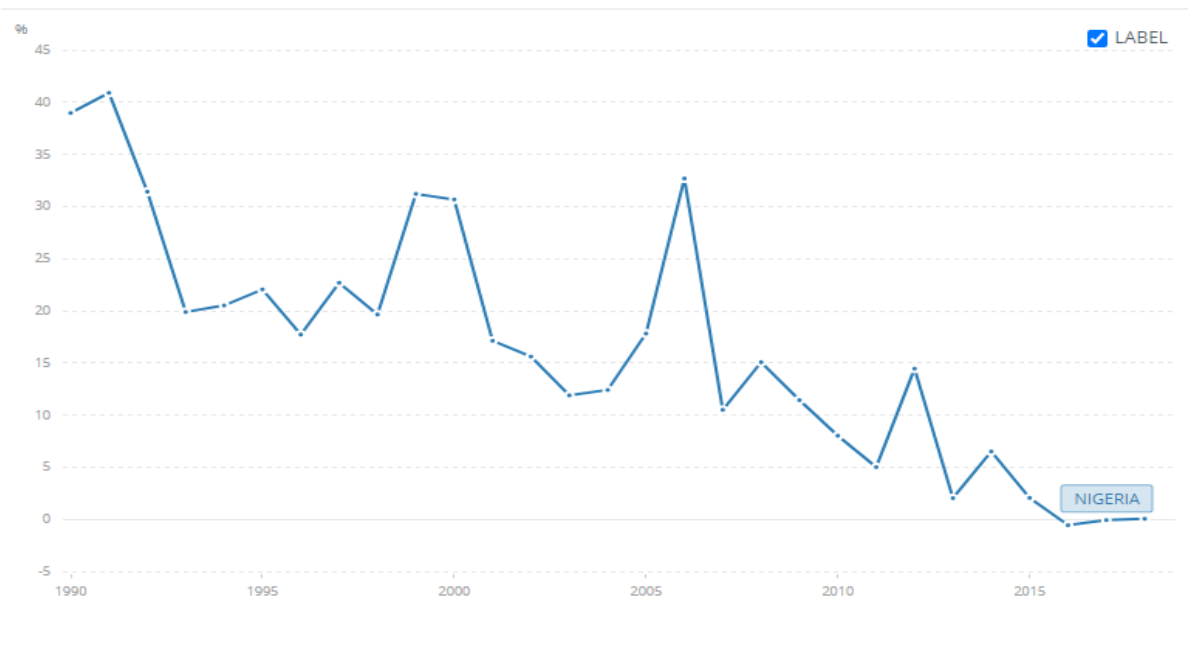


Figure 2.2.7: Nigeria’s economy growth showing adjusted net savings and includes particulate emission damage (% of GNI) (World Bank Group, 2020).

The Figure below shows a summary of some key population and economic indicators of Nigeria as of January 2020.

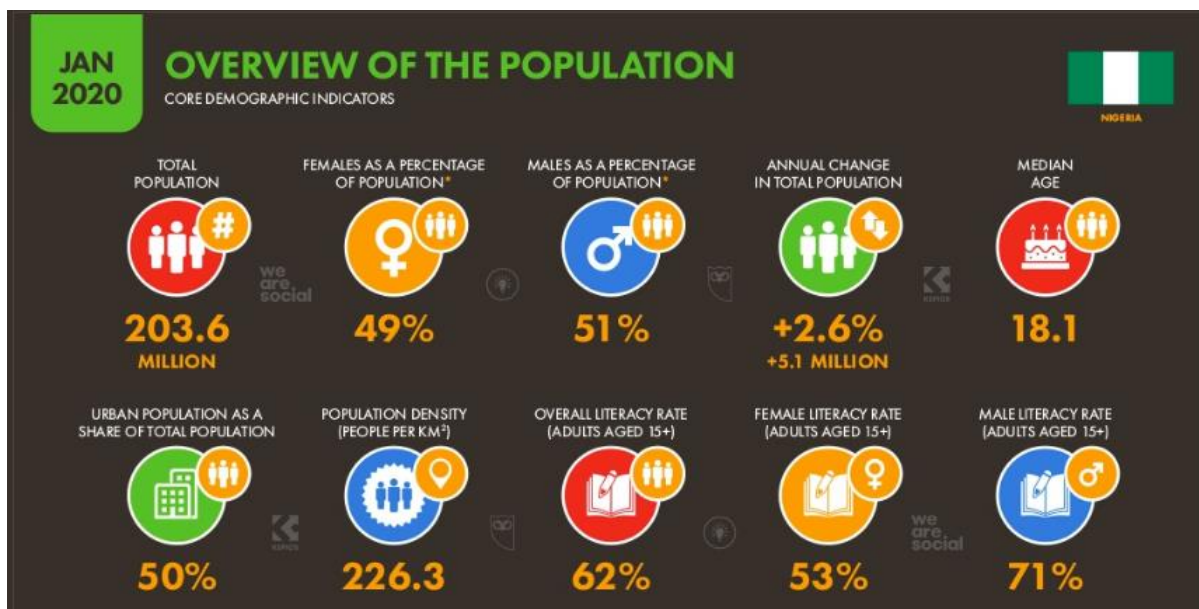


Figure 2.2.8: Overview of the Nigerian population (Kemp, 2020)

### 2.3 FinTech

To a layman, FinTech covers any start-up company that disrupts the ‘old-style’ way of dealing with money. While The World Economic Forum (2017) defined FinTech as 'new entrants that promised to rapidly reshape how financial products were structured, provisioned and consumed', Ernst & Young Global Limited (2018) defined it as 'organizations combining innovative business models and technology to enable, enhance and disrupt financial services', with emphasis that FinTech does not only cover early-stage start-ups and new entrants but also maturing firms, scale-ups, and non-financial services firms. Others like Dietz et al., (2016) defined FinTech to be ‘start-ups and other companies that use technology to conduct the fundamental functions provided by financial services, impacting how consumers store, save, invest, borrow, pay, protect and move money’.

As Frame et al. (2019) pointed out, technological change that generates financial innovations in banking has connotations for developments in fintech. According to KPMG's definition, FinTech is a technology-based business that competes against or collaborates with financial institutions. The services they render range from software creation to processes that aid financial institutions to update their operations and improve on customer experience, or to enable service users to fulfill their financial needs ((Fortnum et al., 2017). FinTech comprises technologies that affect the overall businesses of financial institutions. which includes performance management, risk management, law compliance, system integration, portfolio reconstruction, payments, and online transfer.

From all the definitions, FinTech, from start-up and technology companies to the financial industries, does not only represent a powerful force of disruption but also a force of digital transformation within the traditional services organizations.

In a bid to clearly define FinTech, it is pertinent to consider its historical roots and origin, as well as factors that have made it succeed or failed. However, such study where the origins are examined as an extension of financial services (as seen in the table below), have quite often been qualitative and consisted of little or no historic research (Schueffel, 2016). While some literatures focused on roles and structure (Arner et al., 2017a; Arner et al., 2017b; Lee & Shin, 2018) others emphasized on attributes and provision (products and services (Iman, 2018b; Ng & Kwok, 2017). A couple of studies have rather shown that most FinTech organizations have their

origins in the Information Technology industry rather than the traditional banking sector (Gomber et al., 2017).

In his study, Schueffel (2016) holds that the term ‘FinTech’ is suffering from semantical problems and is on a shaky ground. The term has already produced offshoots such as RegTech, WealTech and InsurTech. Schueffel (2016) further added that due to lack of a definition, what a Frenchman means by FinTech is different from what an Englishman means by it, let alone the other parts of the world (Iman, 2020). It is evident that the term ‘FinTech’ is broad, rich in phenomenon, complex and can show up in several ways. While some researchers focus on the market and product aspect of it, some dwell on the innovation aspect while others on technicalities, regulation and compliance or technological artefact. As such, it is vital that a universal definition, that can be adopted by business standards, come up.

<b>Year</b>	<b>Development of Banking and Fintech</b>
1600s	Establishment of banking system
1700s	Cheque-clearing systems
1950s	Diners Club, American Express
	"Chemical Bank New York
1970s	Credit card, VISA and MasterCard
	"ATM/cash card along with spreading network of Plus, Cirrus, Maestro"
1980s	Electronic fund transfer at point of sale (EFTPOS)
	"Switch and Visa debit card"
	"Prudential Banking Plc."
1990s	Smart card with chip technologies
	"Internet card"
	"Visa cash Mondex cards"
2000s	Vodafone™s near field communication (NFC) mobile wallet
	"Online banking"
	"Mobile banking"

	"Digital payment systems"
2010s	Peer-to-peer (P2P) internet payment
	"Digital banking system"

Figure 2.3.1: FinTech and Banking development (Iman, 2020)

**2.4 Evolution of FinTech**

The application of technology and information technology to financial services has been existing for a while and had always focused on innovations to enhance the effectiveness of technology infrastructure and improvement of system stability, security, and resilience. Even as this remains a priority for the industry's effective operations, a more contemporary application of FinTech surfaced in the last few years- through digital channels- empowering the delivery of new and innovative services, creating new business models, and redefining customer experience.

FinTech’s origin can be traced back to the early 1990s and was known as 'Financial Services Consortium', started by Citigroup to facilitate technological cooperation efforts (Hotchstein, 2015). It was however in 2014 that the sector attracted the attention of industry participants, regulators, and consumers. The 2008 global crisis was also a part of the reasons why FinTech became an evolving paradigm.

At a broader level, FinTech is the application of technology to finance, and by this definition, the following observations are made:

- FinTech is not a completely new development of the financial services industry: the introduction of the telegraph and successful laying of the transatlantic cable provided the important infrastructure for the initial and major period of financial globalization in the early 19<sup>th</sup> century (Barbiroli, 1997; Hills, 2002), and then the subsequent introduction of the Automated Teller Machine by Barclays Bank marked the beginning of modern evolution of the present-day FinTech (Lerner, 2013)
- Being one of the major customers of information technology (IT) products and services, its total spending in 2014 was estimated at US\$197 billion across North America, Europe, and Asia-Pacific. (Arner, Barberis and Buckley, 2015; Jegher, Lodge and Zhang, 2015). The financial services industry had been the single largest buyer of IT since the mid-1990s, and hence the driving force of traditional financial services.

- FinTech is not restricted to any single business model (e.g., peer-peer lending) or sector (e.g., finance) but covers a whole scope of products and services that have been traditionally provided by the financial service industry.

Three different eras of FinTech have been distinguished (Bates, 2017 p.5 and Thakor, 2020 p.2):

#### **2.4.1 FinTech 1.0 (1866-1967)**

During this period, also referred to as FinTech 1.0, while being heavily interlinked with technology, the financial service industry largely remained analog. The late 19<sup>th</sup> century saw the combining of finance and technology to produce the first period of financial globalization which lasted till the beginning of the First World War. This period also saw the invention of technology such as the telegraph, railroads, and steamships underpinned financial interlinkage across borders which allowed speedy transmission of financial information and transactions around the world. The post-war era saw the commercial development of early computers such as International Business Machines (IBM), credit cards such as Diners Club in 1950, American Express in 1958 and Interbank Card Association in 1966 (MacDonald & Tompkins, 2017).

#### **2.4.2 FinTech 2.0 (1967-2008)**

FinTech 2.0 was launched in 1967 where financial services moved to the digital industry from being analog. During this time, FinTech has primarily dominated the traditional financial services that are regulated and used technology to provide financial services and products.

The inter-Computer Bureau, which formed the basis of Bankers Automated Clearing System (BACS) was established in the UK in 1968 (Welch,1999), while the US Clearing House Interbank Payment System (CHIPS) was in 1970. The telegraphic Fedwire became electronic, Society of Worldwide Interbank Financial Telecommunications (SWIFT), which interconnects domestic payments across borders was also established in 1973 (Swift history). Security-wise, NASDAQ was established in 1971 which ended physical trading and switched to fully electronic securities trading (Kennon, 2019).

In the consumer area, online banking was first introduced in the Us and UK in 1980 and 1983 respectively (Pilcher, 2012) and Michael Bloomberg's innovation of Innovation Market Solutions (IMS) in 1981 (CNBC, 2014). By the late 1980s, the fax was replaced by telex and financial

services had been largely converted to a digital industry with electronic transactions between financial market participants, financial institutions, and customers around the globe. But it was the emergence of the World Wide Web by Wells Fargo in 1995 that set the next stage of development, and by 2001, eight US banks already had over one million online customers. The first bank without physical branches such as ING Direct, and HSBC Direct, emerged in the UK in 2005 (Arner, Barberis & Buckley, 2015).

### **2.4.3 FinTech 3.0 (2008-Present).**

Hard as it is to say where and how the trend started, the 2008 GFC was known to be a turning point that catalyzed the growth of FinTech 3.0 era. The Financial Services industry was affected by a 'perfect storm', which allowed a new generation of participants in the market to establish a new archetype called FinTech. At the start of the financial crisis, its initial effect on real activities seemed limited. The second half of 2007 saw the lowering of housing prices, stock prices (initially triggered by decreased stock market value of financial institutions), credit rationing and higher risk premium. The effect suddenly became more pronounced in the fall of 2008. The fear that the crisis was deteriorating and heading towards another great depression led to a dramatic fall in stock prices and in both corporate and consumer confidence around the globe. Overtime, the stage was gradually getting set for much larger crisis which Blanchard (2008) had listed the preconditions: the opacity of derived securities on financial institutions' balance sheets; underestimation of the risks found in the anew issued assets; the interconnection of these financial institutions, both across and within countries; and the elevated level of leverage of the whole financial system or reduced credit to domestic debtors. These preconditions came together to create the 'prefect (financial) storm' (Blanchard, 2008).

The post-crisis effect was the alignment of market conditions that supported the rise of innovative market players in the financial industry service. These conditions include regulatory scrutiny, public perception, political demand and economic conditions (Arner, Barberis and Buckley, 2015).

FinTech 3.0 may have emerged in the West because of the financial crisis, but this development was promoted basically by the pursuit of economic development in Asia and Africa. For these

two regions, this was named FinTech 3.5 era. This era is, in Nigeria, supported by a robust fundamental rationale which has the following characteristics:

- A fast-growing class with one-fifth of Nigerian population reported to be in the middle class (World Bank, 2020)
- Young and digitally savvy populace owning a mobile device (Gilbert, 2021)
- Unexploited market opportunity (high population of the unbanked) (Abimbola et al., 2018).
- Incompetent capital and financial markets thereby creating opportunities for informal alternatives (Abimbola et al., 2018)..
- The scarcity of the physical banking set-ups (Abimbola et al., 2018).
- Less rigorous competition and data protection (Elgujja, 2021).

## **2.5 FinTech Segments.**

Since the global financial crisis, several regions have experienced successful financial sector reforms that were accompanied by advancements in economic growth and better efficiency of the financial system, while other regions/countries have continually faced disruptions to economic growth and further crises. Since the financial crises of 1986, several emerging economies, including Nigeria, embraced financial reforms (Iganiga, 2010), which saw the introduction of programmes such as Structural Adjustment Programme (SAP) in 1986 and the bank consolidation exercise in 2004 in Nigeria. However, Nigeria's financial system is currently not able to meet expectations as a propeller of economic growth and development, let alone sustain it (Albert et al., 2021).

Four distinct roles are played by financial service companies in any economy- credit creation and management, wealth management, risk management and facilitating payments (Arner, Barberis and Buckley, 2015; Ali, Abdullah and Zaki Zaini, 2019). In the same vein, the FinTech industry targets five broad segments for financial activities. These include:

- I. Finance and investment
- II. Operation and risk management
- III. Payment and infrastructure

- IV. Data Security and monetization
- V. Customer interface.

These broad segments laid the foundation of the numerous sub-segments that make up the FinTech landscape as would be studied later in this chapter.

#### ***Finance and investment***

FinTech extends, obviously, beyond the scope but all the attention of the public, investors, and regulators seem to focus basically on alternative financing mechanisms, most especially P2P lending and crowdfunding. Others include venture capital, private equity, public offerings, listings, and private placements. And in addition to the development of alternative financing mechanisms, FinTech is continually involved in areas such as robo-advisory services.

#### ***Financial operations and risk management***

Since the global financial crisis of 2008, financial institutions are being obliged to build higher compliance systems, to keep pace with the stringent requirements that surfaced after the crisis. And since information technology (IT) will facilitate the assessment of risk as well as the 'hold in place' risk management measures, continuous growth is foreseen in the sub-sector as it offers business opportunities for FinTech organizations.

#### ***Payments and infrastructure***

Central to the focus of FinTech are mobile communication and internet payments. This has been a powerful driving force, especially in developing countries. This sector has been an area of interest for regulators dating back to the 1970s, and this resulted in the development of both cross-border and domestic electronic payment systems which today supports the global foreign exchange market with US\$5.4 trillion transactions per day. Another important aspect of this sector is the infrastructure for securities trading and settlement for Over the Counter (OTC) derivatives trading, these are areas where telecommunications and IT companies are searching for chances to disintermediate traditional financial service providers.

#### ***Data Security and Monetization***

Digitization of the financial industry means increased vulnerability to espionage and cybercrime, where the former is of utmost importance to geo-politics. The GFC created awareness on the



need for stability in the financial system, as a national security issue. Because of this digitization and subsequent vulnerability, research and development have for decades, remained a priority for regulators, industry participants, policymakers, government, and customers alike (Moody's, 2015).

### ***Consumer interface***

This has and will continue to be the focus of both traditional and non-traditional financial FinTech developments. In this sector, the new and existing telecommunication and IT firms have continued to directly contest with traditional service firms, mostly in the developing countries where the factors are increasingly combined to favor the new FinTech era (FinTech 3.5) development. This is the sector that has the greatest scope of competition with the traditional financial sector (Osawa J., 2015)

There has been a rapid expansion of products and services offered by the FinTech sector. FinTech's investment over the past five years was largely focused on retails payments: payment applications, lending, and money transfer. FinTech cuts across a wide range of financial activities such as insurance, corporate and investment banking, wealth management, small and medium-sized enterprises (Accenture, 2016; Dietz, HV & Lee, 2016). The Figure below shows over thirty areas that the industry's reach has extended to, and this has taken FinTech organizations away from frontline activities focus to a broader engagement throughout the value chain.

Exhibit

We see more than 30 areas emerging as new norms in banking.

Key fintech trends



McKinsey&Company | Source: Panorama by McKinsey

Figure 2.5.1: FinTech segments (Dietz, HV & Lee, 2016).

There is also another classification of FinTech at a more fundamental level which aids in understanding the relationship between FinTech business models, trends, and enablers. The Figure below shows an explicit classification and definition of the different groups. Business models and trends are driven at the basic levels by enablers. As seen below, the enablers include technology, big data, the internet, and regulation. An example of such a relationship is when the development of mobile money, which enables disruptors like mobile network operators to get into the financial services industry, is achievable basically by the wide adoption of the internet and mobile phones.

It is worthy to note that this relationship between business models, enablers, and trends is multidirectional. For instance, while the penetration of the internet in Africa is still at the lowest, it is to an extent the speedy development of mobile internet-based business models that will

bring enormous value to customers which in turn creates the demand for internet access (enabler) and smartphones (disruptor). The illustration is made in the diagram below (Lim et al., 2016).

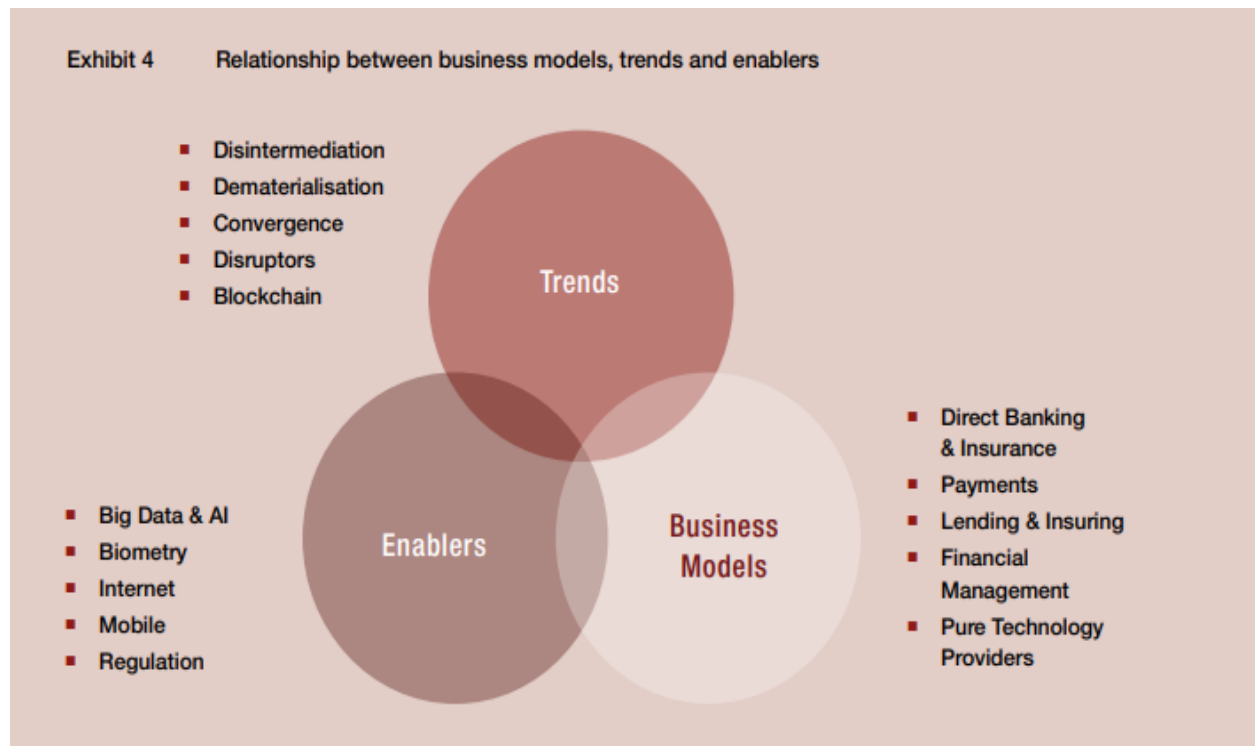


Figure 2.5.2: Methodological relationship (Lim et al., 2016)

To better understand the divisions above, it is worth noting that various segments have appeared more than once in the cycle, depending on the type of technology it uses. An example is robo-advisory systems, which make use of tested technology and minimal human input to meet the needs of a customer, while blockchain systems are after more experimental technologies to track and store the growing series of transactions to help in the reduction of infrastructure cost and to improve efficiency. Blockchain technology carries the potential for innovation across multiple segments of the landscape. (Bennet, 2016; Dietz, HV & Lee, 2016).

A simplified primer is shown below, outlining the key segments of the industry.



Figure 2.5.3: A simplified FinTech segment primer (Bennet, 2016).

The following are areas of great interest because of their technological disruption, rapid growth, and regulatory risk:

### 2.5.1 Payments

The payments industry is packed with different systems of delivery such as banks, social media companies, and financial technology firms. But this system is currently undergoing significant changes in how the service is delivered. With the emergence of blockchains, smartphones, and mobile payments, innovation has been unlocked across the system. Three key areas are in-store retail payments with smartphones and made possible by the use of Near Field Communication (NFC), barcodes or Quick Reference (QR) codes, the use of mobile phones to make payments at a physical location using applications such as Apple Pay, Samsung Pay, and others are typical examples (World Bank, 2018); Peer-to-Peer payments which involve the transfer of funds from

one person to another without the use of bank accounts such as mobile money solutions like M-Pesa and new business models like Azimo and Transferwise that allow cross-border transfers by matching transactions with other users that are transferring in the opposite direction and as such avoiding high fees. This is possible because the money does not really leave the origin's economy (World Bank, 2018); Thirdly is credit/debit card transaction processing that relies on a complex network of organizations (see figure below) that includes acquirers/processors, independent sales organizations (ISOs), and merchant service providers (MSPs), issuers, card networks and gateway providers (Heggestuen, 2015; Panno, 2016; World Bank, 2018).

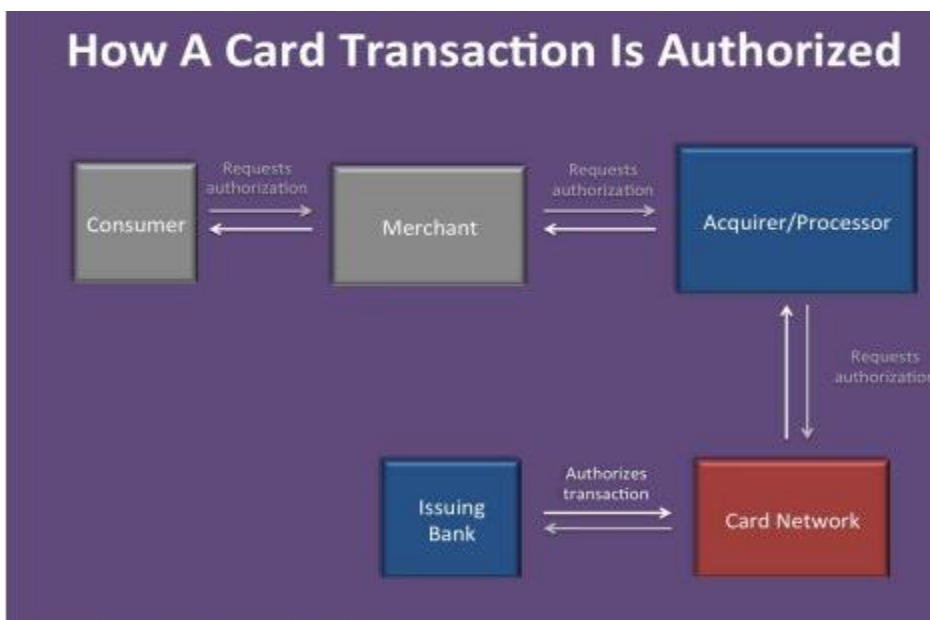


Figure 2.5.4: Credit/Debit card system (Heggestuen, 2015).

FinTech has also not left out the business-to-business (B2B) setting where the companies have been assisted to automate account payable processes and eliminate any friction between merchants and their suppliers.

## 2.5.2 Digital Lending

This refers to the non-bank technology-driven lending. This has become a possibility due to large data access, significant computing power, and sophisticated algorithms that have enabled

competition between the new FinTech companies and the traditional banks by rolling out appealing offers to borrowers. These borrowers are small businesses and consumers benefitting from offerings such as student loans, small-business loans, lines of credit and equipment - financing loans, while individuals and institutions provide the capital.

Digital lending companies have the responsibility of matching lenders and borrowers, thus gaining from these relationships and the transaction processes. The process starts with the borrowers submitting an online application and funding decisions take days to make (Kessler, 2016). Two primary models exist for digital lenders: Direct or balance sheet lenders who make loans available without involving third parties such as banks, brokers, or private equity firms and Platform or marketplace (Peer-to-Peer) lenders who use online platforms to connect businesses to consumers who are seeking to borrow money with investors of the loan.

The introduction of credit score or FICO (Fair Isaac Corporation) in the late 20th century, which takes into consideration five factors- current level of indebtedness, payment history, types of credit used, new credit accounts, and length of credit history- to determine the creditworthiness of an individual, brought democracy to credit and made borrowing easy (Hayes, 2018). Two major obstacles to lending have been resolved with the introduction of FinTech:

**Outreach:** In recent times, and in as much as credit has become part of everyday life to the middle-class society, about 2.5 billion adults around the globe are unable to access traditional banking services or any reliable banking alternatives. With the population of individuals in the United Kingdom alone, who are unable to manage such facilities rising from 4 million to 19 million from 2011, more consumers are within the risk window of falling 'Off-the-grid'. To fall off the grid means a natural condition in the vibrant or lively developing worlds' economies where traditional banking that is inaccessible to the poor is replaced by informal community-based ecosystems. With mobile technology, these emerging markets have vaulted over the traditional banking structures and have offered proven ways to the identity of the unbanked. The technology offers new applicants a grip on the circulation of more compound financial products such as insurance, loans, and savings. Still at that, the likelihood of accessing the global capital markets and enlarge consistently into new horizons is being limited by the tight-knit community networks which they are serving.

The inability of these emerging market champions, to achieve decentralization is to the advantage of the traditional financial players especially in mature economies that rely on the accessibility of partial set-up (regulation, methods of identification, and bank payments) to establish their place as market leaders.

**Risk:** With the absence of artificial intelligence and data analytics to perform the continuous evaluation of individual borrowers' actions, the interest rates are usually kept static, which is easier and more profitable to the traditional microlenders. These lenders often harvest the surplus profit from the good customers and strengthen the inactivity of those at the other end of the credit ladder. But the introduction of smartphones has created a high flow of information from the consumer to the lender and vice versa, thereby providing real-time

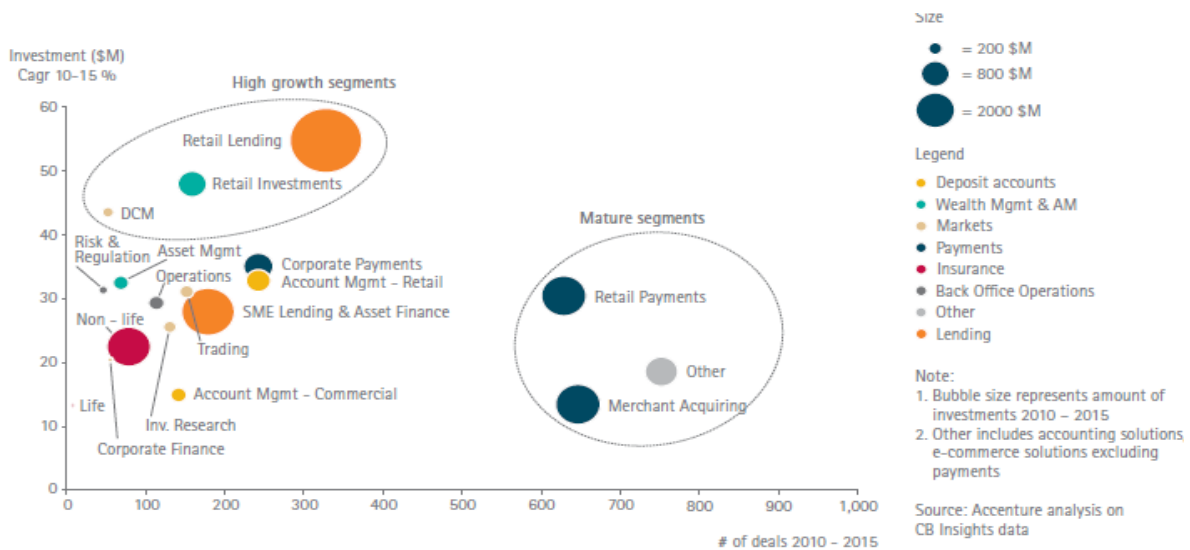


Figure 2.5.6: Global FinTech investment by product segments for 2010-2015 (Accenture analysis on CB Insight Data, 2016).

### 2.5.3 Blockchain

A Blockchain is a database that makes use of cryptographic functions to maintain identity integration and data integrity. This covers not only centralized and distributed ledger technologies, but also cryptocurrencies. While a ledger tracks transaction, a distributed ledger uses a decentralized P2P network to maintain the ledger. A complex sector of FinTech, the main goal of blockchain technology can simply be put as decentralization through a shared ledger of

transactions (Holt, 2016). It has been known to record transaction history better than other means of payment or other known electronic money.

Notwithstanding the excitement and rising interest in this technology, there is still much ambiguity surrounding the underlying concepts. Certainly, prospective adopters still battle to grasp the related concepts necessary to secure business value from them. However, very little empirical studies have been done to evaluate the potential of these disruptive technologies, the factors responsible for its success and sustainability, especially in developing economies where it is yet to be fully accepted and integrated.

Three major components of this sector are: a database (digital ledger), peer-to-peer network with nodes or random groups, and third parties (Figure 2.5.7). This is a decentralized payment scheme that does not entail a single trusted third party to authenticate transactions. When an entry is submitted to the ledger by a third party, the nodes work together to either reject or approve the transaction. There is no central authority present and as such, it removes the need for having to trust one party, such as a payment process. Every process is protected by cryptographic signs or compound algorithms that provide data integrity and are also timestamped. That way, any party attempting to readjust transactions will be seen by every node in the network. This makes every submitted transaction unchallengeable (Holt, 2016; World Bank, 2018).

Blockchain technology uses the digital form of cash as it is applied to several other transfer processes. It provides a new payment structure that eliminates intermediation of many financial and non-financial processes thereby increasing efficiency and speed, and reducing transaction costs (World Bank, 2018).



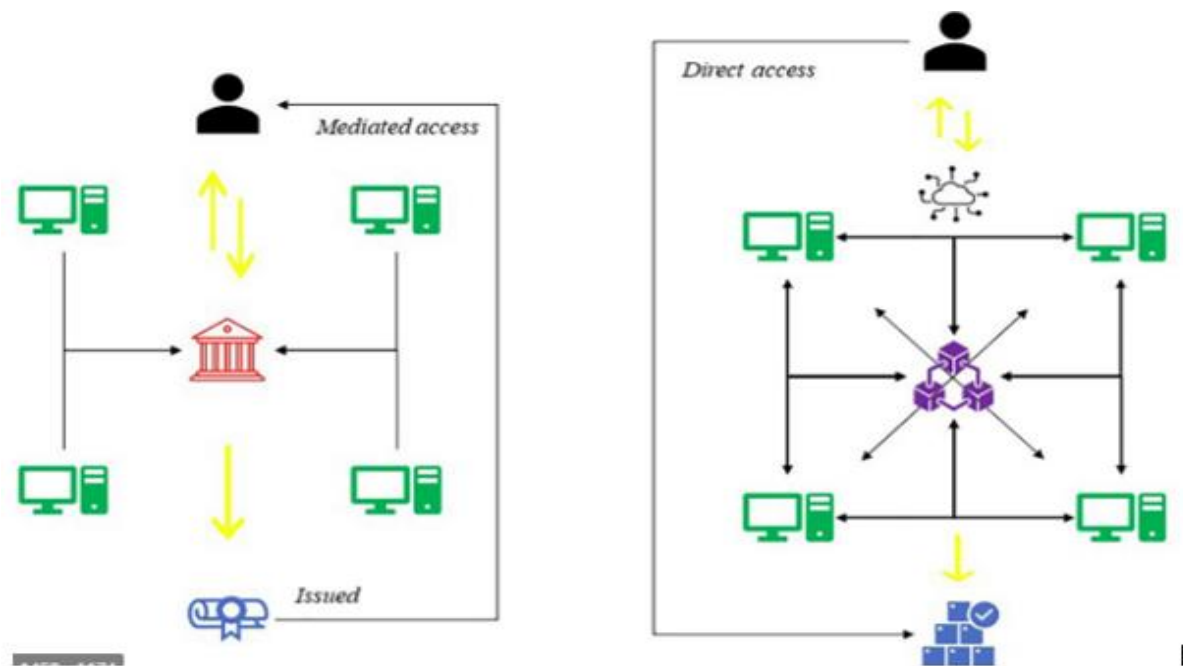


Figure 2.5.7: The old ledgers without centralization, and the new ledger (Riva, 2020).

### 2.5.3.1 Understanding Blockchain

In 2017, enthusiasm about blockchain and other related technologies rose to new heights. Governed by two main cryptocurrencies (Bitcoin and Ethereum), the market caps rose by 1,200% (or US\$200bn) within the period of January and November 2017 (Bovaird, 2017; Walden and Christou, 2018). The Initial coin offer (ICO) alone raised about US\$1.3bn between January and September 2017 (Arnold, 2017; Walden and Christou, 2018). Several organizations that ranged from charities to banks publicly showed their interest in utilizing blockchain technology and the burst in activities began to attract mixed responses from regulators and Governments around the globe.

Bitcoins were the major use of blockchain. Bitcoin is a cryptocurrency operated in a "trust-less environment", which meant that the users do not need to trust one another but rely on the technology. As with the trends in other technologies, blockchain has changed through generations of use. Developed in 2009 by Satoshi Nakamoto, it was an open permission-less system that uses decentralized currency controlled by protocols and not a central entity (Walden

and Christou, 2018). A second generation that led to the creation of decentralized apps beyond bitcoins was introduced by Vitalik Buterin: Ethereum having smart contracts as the basis. The third generation of blockchain concentrated on developing more applications beyond money to build interoperable ecosystems that are based on distributed ledgers (Gupta, 2018). The fourth generation of blockchain was/will be created to be used in more complex environments with a focus on speed and scalability using the Crypto Relational Database. With every generational development, the concerns of scalability and privacy become clearer. The recent generation of these technologies attempts to do this through different methods which include using centralized platforms.

With a distributed storage network, blockchain is not stored by a singular central party but dispersed across several nodes in which each node holds a copy of the ledger. Furthermore, blockchains can either be permission-less systems -open access or permissioned systems -closed access. The closed environment has several smaller nodes that act as trusted intermediaries to control, or the central control to the blockchain. The latest generation of blockchain can also have a global or localized application, with private or public platforms. The identity of participants can either be a real-world identity or a pseudonym based, making use of public key infrastructure (PKI) to create a digital signature. In using a public platform where blockchain archives can be downloaded by anyone, user identity is a very important feature. The unchangeable nature of the ledger is what creates trust: every entry is timestamped with a hash unique identifier that has been mathematically generated when distributed, it is then replicated across all nodes. What this means is that where a single user deletes or amends an entry, it would be visible to everyone (Bacon et al, 2017; Walden and Christou, 2018).

### **2.5.3.2 Legal and regulatory factors for Blockchains**

The several ways in which blockchains can be adopted means that any legal response needs to be customized to its circumstances. Characteristics-wise, it is pertinent to consider trustworthiness and control. The early blockchains functioned in a trust-less environment but the blockchains of the future will progressively be used as trusted nodes with restricted trusted parties having

control over the ledger. Secondly, the identity and visibility of participants will largely impact the legislative and regulatory requirements. Points to consider include, but not limited to (Bacon et al, 2017; Walden and Christou, 2018):

- Who proposes new transactions that will be added to the ledger?
- Who can add new blocks to the ledger?
- Who stores a copy of the ledger?
- Who can view the ledger and if users are identifiable?
- Who controls the platform's basic software?

While the use case is to define the specific regulatory and legal implications, three sections of the law are worth emphasizing which are likely to raise more generic anxieties for blockchain technologies. They include legal validity, evidential rules, and data protection.

1. Data protection: For compliance, it is very important to identify who determines the means and purpose of processing (i.e., controller) and who processes the data on others' behalf (i.e., processor). In the setup of the distributed ledger model, the control is purposely/intentionally not centralized which raises concerns in identifying the processor and controller. Depending on how active a role they take with transaction data, and with miners and nodes being either controllers or processors, users are more likely to become controllers. The ambiguity that surrounds the use of data protection law will affect how data subjects administer their rights, classification of who has processor or controller responsibilities will not always be clear-cut and where there are shared responsibilities, platforms will require to either contractually determine individual duties or using standard terms. Uncertainty bordering prospective responsibilities, rights, and liabilities may hamper innovation.
2. Legal Validity: Whether the legal acts implemented through blockchain technologies are legally valid and applicable in a jurisdiction is another concern. This is basically concerned with Smart Contracts, another area of blockchain that involves automated contracts. Smart contracts run on a blockchain protocol, which forms the contractual agreement and governs the necessary protocol for the implementation of a contractual agreement. Because these contracts are self-executing, they present limited disputes. An

example is when no reliance is needed to be placed on a debtor to pay up. Smart contracts can have an impact on an online agreement, online dispute, and electronic commerce.

3. Evidential rules: National evidential rules vary by country (Appendix 1). Where the processes are digitized but electronic evidence is not accepted, trusted, or understood by the judicial systems, then the significance of the technology applied will be reduced. In the Gambia for instance, electronic evidence is acceptable based on some factors of evidential weight, such as the presenting party been able to certify that it was produced by a computer that is "working properly"- a likely problematic condition in a distributed environment. Other factors include the way the message was communicated and stored and the integrity of the information maintenance (UNCITRAL: model law on electronic commerce with guide to enactment 1996 with additional article 5b is as adopted in 1998, 1999). In Latin American countries, the evidence must be authenticated or notarised by a third-party. In Nigeria, not without its challenges, admissibility of evidence is defined by the Evidence Act 2011 under sections 84, 98, 153, and 258 where different conditions are stated for different situations and types of devices (such as electronic, computer-generated, etc) used for evidence.

Together with Artificial Intelligence (AI) and Big Data, blockchains can also be useful for government planning in aspects such as budget planning, funds redirection from areas of surplus areas of demand. Blockchain and ledger technologies can also be used to curb the possible abuse of public funds and running smart reconciliation. Blockchains are increasingly being used as opened and closed platforms to help organizations, companies, and even governments in data, products, and services centralization in both commercial contexts, humanitarian, aid, and development projects such as its use in the ID2020 initiative that seeks to provide identification for 1.1 billion people who currently live without an officially recognized identity. This operates on a permissioned ledger that helps to maintain confidentiality and control, it can also be used in tracking and tracing aid funds provided to international organizations that pass the funds to local NGOs and then to local clinics, schools, and other local organizations. (ID2020 | Digital Identity Alliance, 2020).

### 2.5.3.3 Blockchain transforming the public sector.

Unlike the colorful early wave of online innovation, the blockchain technology is not expected to catch the public imagination, but with its enormous potential, it will mainly be impacted behind the scenes. The benefits of blockchain-efficiency, speed, and security-are easily applicable to public sector organizations, and the potentials of the technology are the reason why several government leaders are aggressively exploring its applicable uses. The Figure below is from a 2018 research report by Deloitte, pointing out how different countries and their stages of blockchain experiments.



Figure 2.5.8: Blockchain in public sector, June 2018 (Berryhill, Bourgerly and Hanson, 2018).

Different countries were found out to be specific running pilot tests and trials on developing blockchain-based applications according to the circumstances of the country or state: while the United Arab Emirates is exploring its possible application in business registration, central bank application, and trade; Estonia, a country known for its tech literacy and e-services, was piloting it for solutions in identity management, voting, and healthcare. Others include the United States of America testing it for the Department of Homeland Security, Health and Human Services

Department (White, Killmeyer and Chew, 2017). Nigeria's position then was a planned test on digital currency and payments, which has still not gone into full swing three years later.

The major attributes of blockchain that may be of interest to the public sector are summarized in Figure 2.5.9 and Figure 2.5.10. The Figure summarizes how blockchain technology can likely transform government experiences and processes.

### **Decentralized and distributed**

#### *Ledger storage and integrity*

- Ledger replicated across parties, each keeping a full record of transactions
- Distributed system operation, no single point of failure
- Transactions verified cryptographically and updated immediately across all parties
- Provides unbroken and timely recordation of authoritative truth

### **Irreversible and immutable**

#### *Each transaction record is indelible*

- The ledger is append-only, invalid transaction errors are surfaced and rejected—immediate reconciliation
- All transactions encrypted and include time, date, participants, and hash to previous block
- Trust is enabled via consensus protocols, cryptography, and collective bookkeeping
- Allows trusted value exchange

### **Near real time**

#### *Transactions verified and settled in minutes vs. days*

- Parties interact directly—no third-party intermediary
- Moves parties from information exchange to value exchange
- A transaction may include code to run against the ledger
- Enables smart contract automation and enforcement

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Figure 2.5.9: Blockchain major attributes for public sector (White, Killmeyer and Chew, 2017).

Core characteristics	
<b>Shared data</b>	Need for a structured repository of information
<b>Multiple parties</b>	More than one entity writes or reads the database. Access may be permissionless (“public”), permissioned (“consortium”), or private
<b>Low trust</b>	Less than complete trust between the entities (readers, writers, nodes, witnesses, etc.) in the ecosystem
<b>Auditability</b>	Transactions are immutable—once written, they cannot be modified or deleted. Participants have digital identity on every transaction
Value-add characteristics	
<b>Disinter-mediation</b>	No central gatekeeper to verify transactions; cost of intermediary may be reduced
<b>Transaction interaction</b>	Smart contract code runs on the ledger for interaction, dependency, or “settlement” between transactions from different entities
<b>Auditability</b>	Transactions are immutable—once written, they cannot be modified or deleted. Participants have digital identity on every transaction

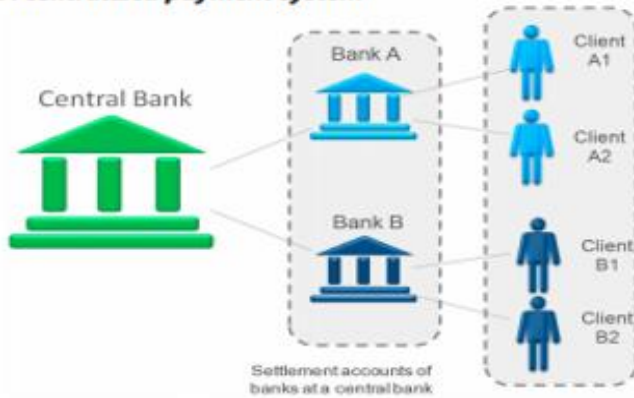
Figure 2.5.10: Blockchain applications characteristics (White, Killmeyer and Chew, 2017).

### 2.5.3.4 Cryptocurrency

Is a sub-group of a virtual or digital currency system. As explained in the previous section, they are based on markets and trust rather than central government oversight and legal acknowledgment. Cryptocurrencies offer low-cost, fast, and efficient alternatives to conventional money with an integral blockchain safeguard. At the same time, it is a complex technology, and most of its users will not have a comprehensive understanding of how it operates and its related risks. The absolute scale of cryptocurrency value also implies that it could greatly impact the financial stability of the economy, the reason why the government cannot just ignore it. The major challenge is that cryptocurrencies have not largely been backed by central banks or regulated by financial authorities which has hindered the growth of that segment of FinTech in Nigeria (Akinosun, 2021).



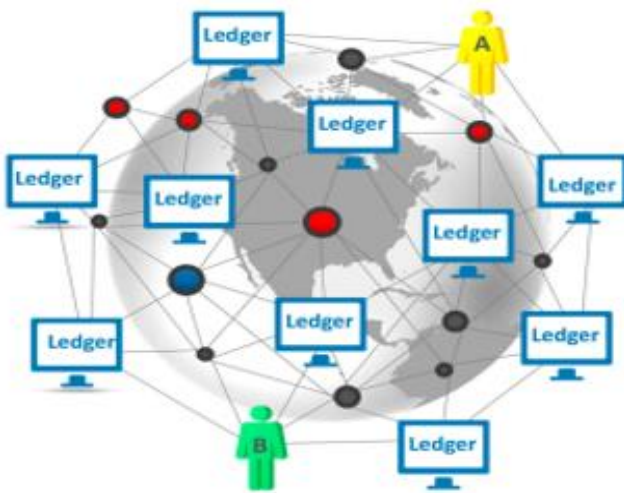
### A centralized payment system



#### Payment from A1 to B1:

- Money is deducted from A1's account in bank A.
- The central bank moves money from bank A's settlement account to B's.
- The central bank maintains central record (ledger) of interbank transactions, by validating transactions and safeguarding against double-spending and counterfeit.
- Bank B adds money to B1's account.
- Banks A and B maintain the ledger of transactions for their clients A1 and B1 respectively.

### An illustrative example of distributed ledger system similar to Bitcoin (Blockchain)



#### Payment from A to B:

- Copies of transaction records (ledgers) are kept in multiple computers in the network and visible to anyone.
- The transaction is settled by a multitude of individual nodes (miners), providing computing resources to the network.
- Miners solve a cryptographic puzzle as part of validation process. Miners need to show proof of doing this work to the network (called a "proof-of-work" system), which is costly (computing and energy resources).
- Only the miner who finds the solution faster than any others receives newly minted Bitcoins as reward for their service.
- "Trust" is created by making tampering attempts prohibitively expensive. If a miner wants to record a false transaction, she needs to compete against other miners who are acting honestly (or trying to fake a different transaction).<sup>1</sup>

1/ This mechanism could break down for example if a person or a group takes up 51 percent of the network (mining share), called a "51 percent attack." Some argue that strategic refinement could bring down this threshold to a much lower level (Garraat and Hayes, 2014). Even if a majority is required, the trust machine may break down if some of the miners gain a disproportionately large share of the system (for example, using military or state funds, Swanson, 2015).

Figure 2.5.11: Centralized and decentralized currencies (He et al., 2016)

Cryptocurrency traders' ability to bypass government-licensed financial institutions distinguishes cryptocurrencies from centralized currencies. Figure 2.5.12 (King, 2018) illustrates this principle for cryptocurrencies (the orange dot).



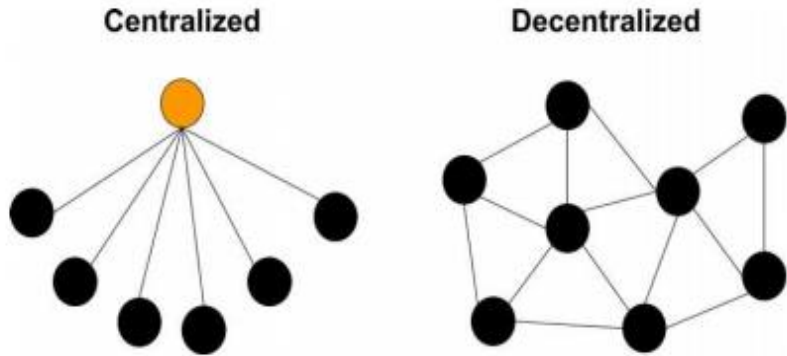


Figure 2.5.12: Centralized and decentralized currencies (King, 2018).

Beyond cryptocurrencies, blockchains are used by governments, banks, and other industries to record the supply chains for products such as is used by the biggest shipping logistics company Maersk, which manages over 30 million shipments a day with every shipment creating 30 documents (White, 2018). Working with cryptocurrencies is not without its risks and benefits. The benefits and risks are listed accordingly:

- **Benefits:** Boosting real-time completion of financial transactions and helping in the financial inclusion race by having better efficiency and speed in executing transactions and payments particularly across extensive geographical borders. This is the likely reason why the currencies are growing in global usage. The distributed ledger technology which the cryptocurrency scheme relies on is an innovative decentralized means of tracking transactions in a bigger network. It also offers prospective benefits that are beyond just the virtual currencies themselves. In addition, cryptocurrencies are immune from the nuances of government or national or political control (He et al., 2016)
- **Risks:** Cryptocurrencies can serve as potential conduits for money laundering, tax evasion, terrorist financing, and fraud. They can also present long-term risks of financial instability (He et al., 2016). Additionally, the moment transactions are confirmed, they are irreversible since there is no central authority that regulates and monitors transactions. Due to some sort of fixation in the crypto-coin supply, there is a possibility of deflation.

### **2.5.3.5 Bitcoins**

The original and most widely used cryptocurrency, bitcoin, has the same fundamental structure as it did when created in 2008, but the changing global market created a new demand for cryptocurrencies so much larger than its original showing (Reynard, 2018). Bitcoin is a cryptocurrency operated in a "trust-less environment", which meant that the users do not need to trust one another but rely on the technology. In using cryptocurrency, the users can digitally exchange value without third-party oversight.

A technology like this was not considered when the current financial and legal structures were designed. The financial institutions are created of much older types of currency that were in some ways relative to the computing industry. The model of computing still depends on transmitting and processing 0's (Zeros) and 1's (Ones), offering only two input dimensions. Yet as a result of cultivation, adoption, and the lack of necessity for newer structures, all of our current technology utilizes the technologically ancient system. Cryptocurrencies could become the most disruptive technology should bitcoins become the universal norm for transactions, as long outstanding structures and systems for trade will need to be restructured totally to deal with such competition. As with a "fire triangle", bitcoin's condition for a widespread acceptance needs vendor acceptance, user acceptance, and innovation to ignite. Without any of these three facets, Bitcoin may not become a legitimized conventional currency (DeVries, 2016). The increase in bitcoin usage and user acceptance drives two aspects of this "fire triangle".

In Nigeria, Bitcoin is legal, but the Nigerian Security and Exchange Commission had warned citizens on cryptocurrency investments as being risky and at times fraudulent. (Partz, 2020)

## **2.6 FinTech Ecosystem**

To better understand the dynamics of a collaborative and competitive FinTech innovation, it is important to understand the ecosystem in which it operates. An ecosystem defines the regulatory environment for any impact investment and the major actors involved in the investor and enterprise support. Different schools of thoughts exist on the participants of a FinTech

ecosystem. While Diemers et al. (2015) suggested that the participants are government, entrepreneurs, and financial institutions, Lee & Shin (2017 p.3) identified five different elements – Start-ups, Government, traditional financial institutions, financial customers and technology developers- as represented in Figure 2.6.1 below, while further research by Still et al., (2019) shows a further breakdown of the five elements, which include technology such as blockchain, use and value for the consumer, the role of banks, investor in the financial industry, and regulation.

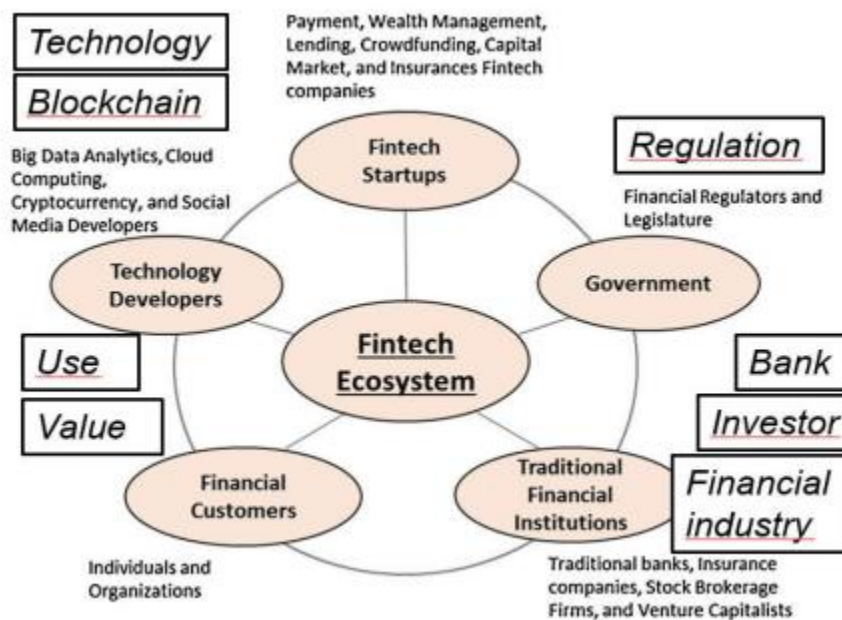


Figure 2.6.1: FinTech ecosystem (Lee & Shin, 2018; Still et al., 2019 p.6374)

PwC classified the ecosystem players under four main classes, adding that the system is redefining the competitive landscape and as well blurring the lines that define these players. The four major players acknowledged here are financial institutions, start-ups, technology companies, and infrastructure players. Others, such as regulators and government, incubators, accelerators, and investors are found under financial institutions while emerging technologies, users, and consumers are grouped under technology companies (PwC, 2016).

According to KPMG's definition of FinTech, it is a technology-based business that competes against or collaborate with financial institutions, and as such, FinTech start-ups engage in

partnerships with financial institutions, research institutions, universities, technology experts, government agencies, industry consultants and associations. It is through these partnerships that a highly integrated ecosystem is created, which brings with it the experience, technology, expertise, and facilities of all the entities put together. A FinTech hub is created from an integrated ecosystem.

The diagram below shows the pillars of the FinTech ecosystem. In line with that definition of FinTech, the ecosystem can be said to consist basically of the following players (GIIN, 2015; Fortnum et al., 2017):

- Strat-ups
- Incubators and accelerators
- Research institutions
- Industry associations and networks
- Business plan competitors
- Credit rating services
- Technical assistance providers (include advisory services)

The Nigerian economy, which has been predominantly cash-driven, is transforming into a dynamic ecosystem that offers start-ups the platform to succeed. The country has responded well to the FinTech opportunity and its growth in some parts of the FinTech areas has been exponential. Although Nigeria's growth rate still lacks behind its global counterparts, it still stacks very well and has great potential basically due to its strong talent pipeline of easy-to-hire and cheap labor (Fortnum et al., 2017). For this report the following sections of the Nigerian ecosystem, as seen in Figure 2.6.2 below, shall be elaborated on:

## Pillars of a FinTech ecosystem

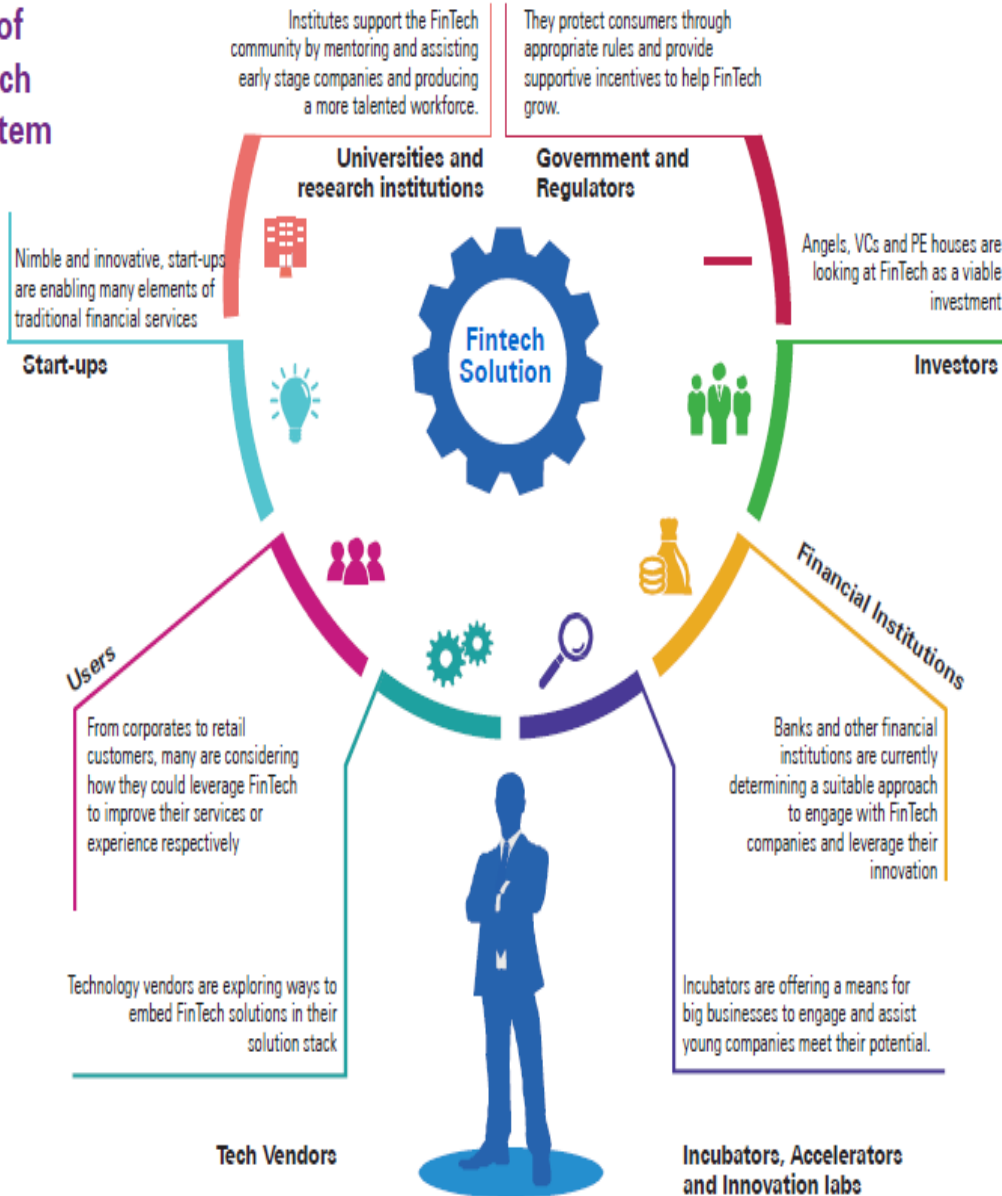


Figure 2.6.2: Nigerian FinTech ecosystem (Fortnum et al., 2017).

The growth of the financial industry is mainly affected by the network of these elements which are as well responsible for the innovation, competition, collaboration, and economic stimulation of the industry.

In the Figure above (Figure 2.6.1), five elements of the FinTech ecosystem are highlighted, with the FinTech start-ups at the centre. The companies represented here are basically, entrepreneurial and have led major innovations in different areas of FinTech: wealth management, payment, lending, capital market, crowd-lending, and insurance while incurring low operational costs, providing more personalized services than the old and traditional financial firms, and aiming at more niche markets. The start-ups have also led the spectacle of unbundling the financial services which is highly unsettling or disruptive for banks According to Lee & Shin (2017), the ability to unbundle services is one of the major drivers of FinTech growth.

Tom Jackson, a co-founder of Disrupt Africa, said that "Fintech is clearly a vivacious space in the African technology scene, conceivably the liveliest of all. It covered nine categories, but the category of payments and remittances came out tops with 41.5 percent. As ecosystem was defined as the regulatory environment for an impact investment and the major actors involved in the investor and enterprise support, regulation will be discussed in detail below.

### **2.6.1 Regulation**

When it comes to market entry, policy, competition, monopoly, and pricing, innovation is shaped by regulation (Liu et al., 2015). In terms of banking and finance, it is virtually impossible to rule out legislation and regulation. Obviously, with the absence of regulation and compliance, financial markets will be unstable and chaotic. As strict regulations are likely to have negative effects on innovation, regulators pay more attention to innovation and consumer welfare relations (Prieger, 2012). The sole aim of regulation is to ensure security, efficiency, and stability in the marketplace through mitigation of likely negative effects of regulations. With the advancement of technology, financial regulations tend to find it difficult to understand innovations and as a result, jeopardize their benefits with inflexible regulations. Contrastingly, successful regulations can enhance the advantages of innovation (Liu et al., 2015).

In FinTech, there are new players (start-ups) that emerge frequently and then the incumbents (e.g., core banking vendors). Unlike the bigger FinTech vendors, some start-ups make use of technology to disintermediate banks, directly proposing their products and services to users. As a

result, questions are raised as to who should/can provide financial products and services, how to maintain an equilibrium between start-up low-cost models and quick benefits while also considering compliance cost, how regulation can cover a rising number of brand-new business models as well as matching the pace of innovation cycles.

### 2.6.2 Regulatory threshold

A major issue that arises with emerging FinTech companies is the limited track records they have as regards their ventures, these include liquidity management, profitability, and risk management. Also, of concern are the period it takes them to identify their obligations in terms of licences and applicable regulations. This poses a restricted consumer and prudential risk, while an exponential expansion of a company can create a 'risk blind spot'. Other mandates include repeated fraud and failures which can also impact the confidence of an investor. Other blind spots can also include the use of company size to evaluate risk. Small companies today do not grow linearly but exponentially. Examples include the mutual fund group Waddell and Reed, who were suspected of being responsible for the S&P 500 flash crash in the United States in 2010, and in 2014, a money market fund part of Alibaba's Ant Financial group (Yu'e Bao) held over \$90 billion within 10 months of its creation, the fourth largest in the world (Cheng, 2014)

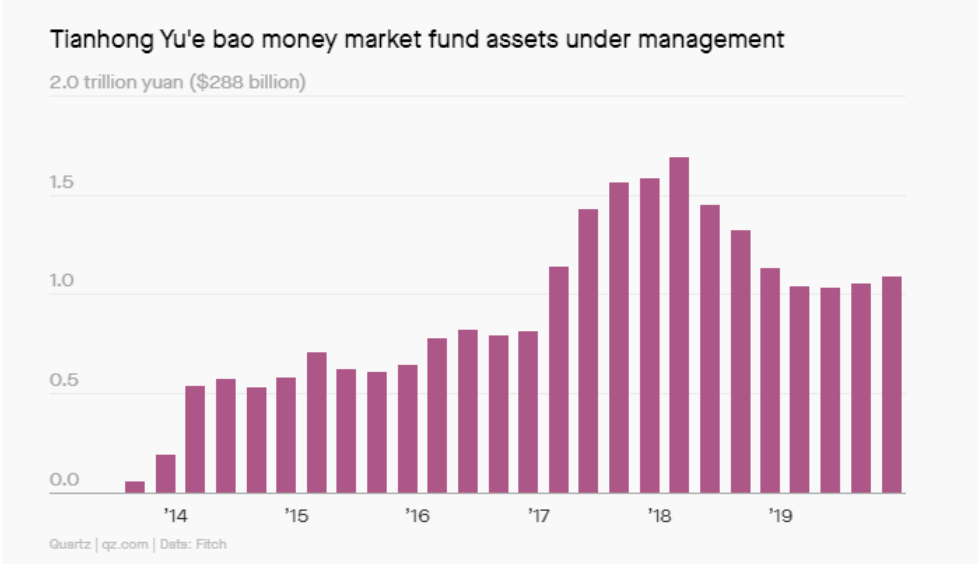


Figure 2.6.3: Alibaba money market (Cheng, 2014)

### **2.6.3 Legal and regulatory factors for FinTech**

The laws and regulations that govern the financial sector will always be the same that guides FinTech. Nonetheless, they will constantly be reviewed to be sure that they are not blatantly strict and restricting while still meeting the public policy objectives. They are expected to, as far as possible, accommodate the products and services of FinTech innovations and are not expected, without a decent reason, to exclude the non-banks from offering financial services. Nigeria has been sighted in the World Bank report as an example of a country with regulatory impediments. It stated that despite being the most populous nation in Africa, mobile money has not been as popular as such, Nigeria's figure of mobile money users remains unimpressive as compared to other African countries. In as much as some elements could have been reflective of cultural preferences, it is sure that the Nigerian Central Bank policy and the unfavourable regulatory environment has subdued mobile money expansion (Walden and Christou, 2018)

### **2.6.4 Regulatory Sandbox and its significance.**

Regulations are introduced so that a healthy balance between the protection of customers and stability maintenance in the market is established while providing enough room for FinTech companies to create and implement the most recent innovations. In a bid to protect customers, regulatory bodies must justifiably err in the side of caution, and this can lead to over-regulation from time to time, creating a challenge for FinTech start-ups to create innovations. The regulators nonetheless appreciate that FinTech innovation is a significant part of the global financial system and financial inclusion as well, and so regulatory sandboxes were created by both national and international bodies and have been an expanding initiative around the globe (Jenik and Lauer, 2017; Member, 2018).

A Sandbox-like framework was first set up in 2012 by the US Consumer Financial Protection Bureau (CFPB) named Project Catalyst (CFPB, 2016; Jenik and Lauer, 2017). The UK Financial Conduct Authority (FCA) in 2015 came up with the name 'Regulatory Sandbox' (FCA,2015;



Jenik and Lauer, 2017). Ever since the model has spread across over 20 countries and still counting.

'A regulatory sandbox is a framework set up by a financial sector's regulators to allow small scale live testing of innovation by private firms in a controlled environment (operating under a special exemption, allowance or other limited, time-bound exception) under the regulator's supervision' (Jenik and Lauer, 2017 p.1).

A regulatory sandbox presents the ability to modify the nature of the relationship between financial service providers and regulators, towards a more active and open dialogue. Sandbox also has the potential of enabling the regulator to swiftly shape and revise the supervisory and regulatory framework. The most common reason for creating a Sandbox includes promoting competition and efficiency in the financial sector through innovation. The success of a Sandbox will depend on how it is framed and, essentially, on the market circumstances (quality of innovations, providers, level of financial market infrastructure development, engagement, competition, and customer trust.

Several other mechanisms have been used by different countries to support financial innovation ('Innovation facilitators') (FSB, 2016). Such include FinTech incubators, FinTech accelerators, FinTech innovation hubs, and industry sandboxes. These innovation facilitators are a part of a wider innovation ecosystem and will complement the sandbox as they possess the landscaping ability to inform broader FinTech policy development. the significance of innovation cannot be overemphasized: whether these regulatory sandboxes will be able to harness innovation to sustain financial inclusion remains to be seen.

### **2.6.5 Why do we need Sandboxes?**

The principal objective of a Sandbox is to align regulation and compliance with the fast expansion of FinTech companies without having to drown them in rules and at the same time not compromising on consumer security. Another reason is to draw the attention of various players like private equity, banks, and venture capital funds in the expectation of securing investments.

It is an obvious fact that regulatory uncertainty deters investments. Investors are hesitant to invest in organizations that are working in unregulated landscapes as they are likely to be swooped at any time by regulatory bodies that deem them illegal, forcing them to either shut down or change their business. In the same vein, investors are also skeptical in investing in overregulated markets as mentioned earlier; overregulation can impede innovation, thereby affecting the growth of the company and its ability to accomplish a valuable return on investment. Consequently, FinTech start-ups that take part in regulatory Sandbox activities can potentially convince investors that were initially hesitant to invest that they are regulatory compliant.

In working with a Sandbox, all the players: users, regulators, FinTech start-ups (innovators), and investors stand a chance of benefitting from the service.

As the FinTech companies (Innovators) get to work with regulators in testing their products in live markets, the regulators on the other hand can develop more apt regulatory policies through better visibility into the innovations encountered. Because the products are tested in a controlled environment before the formal rollouts, and as such able to implement more focused policies, customers get better protection.

## **2.7 Benefits of FinTech.**

In Nigeria, banking has remained an attractive sector with above \$9 billion in value pools, but irrespective of the high levels of competition, majority of consumers remain underserved. The lack of access to sustainable services has created an opening that FinTech was quick to take advantage of by developing enhanced propositions across the value chain to address such gaps. In a nutshell, these are the basic and achievable benefits of FinTech in a country: FinTech has reshaped the way people invest, pay, insure, manage assets and conduct business; it has also created new money. This innovation, seen in both developed and emerging markets economies. (Crowdfunding's Potential for the Developing World, 2013).

- Fintech has increased the transparency and efficiency across the financial industry: With the application of FinTech to traditional banks infrastructure by consolidation of internal and external data through cloud and mobile technology, there is a huge potential in the increase of accessibility and usability of the traditional banking services.
- With the use of automated investment tools and robo-advisers, FinTech can optimise investment through various innovations: using the online automated FinTech offerings cuts out the issues of KYC for anti-money laundering purposes and guarantees clear distribution of responsibilities amongst the players.
- The use of mobile phones to execute transactions is a great means for boosting financial inclusion and empowerment for non-account holders of the traditional banks: Relying on existing network and it enhances speed to market and also optimises business processes. An example of its success is with the globally recognised Kenyan M-Pesa which was known to have provide low-cost alternative for urban settlers that have struggled to own a bank account, enabling them to transact easily. Mobile money has also helped individuals located in dangerous or conflict-torn areas where banks have no representation.

Due to its success and the impact it has made, the World Bank is currently giving its support to Kenya in developing blockchain technology that will issue mobile phone-based bonds called M-Akiba which allow people to invest small amounts of money.

## **2.8 The Disruption**

Perhaps one commonly used buzzword in tech start-ups, the word 'disruptive' is often used to define a 'brand new' or 'ground-breaking' technology that will shake up an existing industry.

Since the 2008 global financial crisis, regulators and policymakers have sought for actions that are intended to reduce the risk of future crises. Such actions included additional stress test requirements, regularizing the over-the-counter derivatives markets, reviewing balance sheet requirements and the lower leverage and higher capital requirements, evaluating how robust the resolution and recovery regimes are, reviewing and enhancing Financial Market Infrastructure (FMI) requirements such as payment systems, securities, and derivative market infrastructures.

The global financial crisis has greatly affected incumbent financial institutions via various channels. The unexpected changes to wholesale funding and their representative markets have forced these institutions to build stronger funding structures that are based on stable deposits and other factors (FSB, 2017).

These changes in financial regulations have resulted in corresponding changes in financial activities. They include, for example, a higher capital requirement which may have resulted in a modification in some banks' lending conduct, and this will likely give the online marketplace lenders an upper hand. Irrespective of the cause of such shifts in the system, these changes have opened the door to new entrants. The new entrants can use technology to offer the same services at a faster rate and in a more cost-effective manner than the incumbents. These activities have in turn led to incumbents trying to imitate the emerging FinTech solutions by developing their own technology in relevant areas (FSB, 2017).

FinTech sector comprises new start-ups (in FinTech), established financial services institutions, and ICT/technology providers that conduct activities and offer investments under technological innovation and the partnership of these parties or their individual 'disruptive innovation'.

FinTech development has affected all sectors of the financial services industry which includes payment, capital market, insurance, wealth management and real estate, systems and infrastructure, as well as industry platforms. The application of IT to financial services has been in existence for decades with a focus on industry innovation efforts on improving system stability and enhancing the efficiency of technological infrastructure. Although this remains of critical importance to the industry, a more modern application of FinTech developed in the past ten years, permitting the delivery of new and innovative services through creating new business models, digital channels and redefining customer experience (Fortnum et al., 2017).

### **2.8.1 Financial Institutions Response to Disruption.**

The financial services industry is clearly, not keeping still. Established financial institutions or the incumbents are gradually realizing that investments in these new start-ups will give them a

wider range of possibilities and new ideas. Information Technology (IT) vendors were historically relied on by the financial institutions to provide technology innovation as part of contractual obligations, but a different model is appearing where financial services firms engage directly with a range of FinTech start-ups.

To keep up with the wave of technological change, financial institutions are taking several approaches such as setting up their accelerators and incubators programmes or funding them. As a matter of fact, funding is now shifting from a venture-capitalist dominated field towards mainstream investment. A research based on data derived from PwC's DeNovo platform stated that FinTech's start-ups' funding has grown at a compound annual growth rate of 41% in the past four years. Over one-quarter of FinTech deals in 2015 involved corporate investors, with a range of 40% in Asia to 25% in North America, and 12% in Europe (Fortnum et al., 2017). Several banks have set the pace in FinTech investment. A study of the approaches being adopted by banks around the globe to tackle FinTech showed that the favourite strategy for most of the banks is to create start-up programmes to incubate FinTech companies. European banks dominate FinTech related engagements with over 80% of the banks studied having their headquarters in Europe while London remains the FinTech hub. The start-ups have changed and are still changing the way banks work without having to disintermediate the banks. Most of the successful FinTech hubs such as PayPal and Square still need the banks' payment infrastructures, while others such as Lending Club and OnDeck rely on referrals from the banks (Gustin, 2015). A diagrammatic representation of the bank-FinTech collaboration is seen in the Figure below:

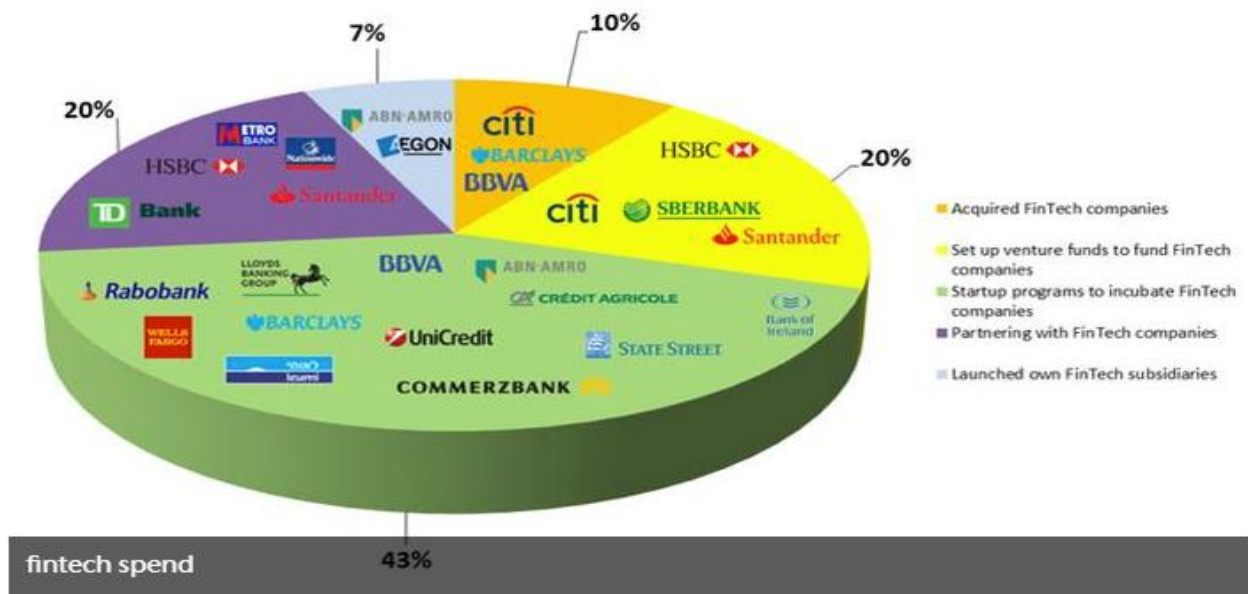


Figure 2.8.1: Bank-FinTech collaboration (Gustin, 2015)

## 2.8.2 Collaborative and competitive FinTech

Financial institutions have two different approaches in responding to disruption-to defend and/or grow. Financial institutions may approach the new technological innovations by trying to merge to meet customer needs or by redefining their current capabilities into new markets or may decide to use defense approach when they sense a high threat of disruption from the new FinTech providers (Fortnum et al., 2017; Accenture, 2016).

On the other hand, some FinTech companies aim to directly compete with incumbent institutions, while others are seeking to partner with or trade their services to the incumbents. Another group has recently emerged that seeks to both collaborate (through white labeling arrangements) with incumbents in certain areas and then disrupt other areas (Fortnum et al., 2017). The collaboration model has more gains for both parties (FinTech start-ups and incumbents): The start-ups gain access to a series of significant growth levers such as capital, data, experience, customers, a trusted brand name, experience, licenses, and an ability to scale faster. The incumbents in turn gain access to knowledge, capability, new ideas, and potential investment opportunities in new players that are basically, concerned with a specific problem or opportunity and offer lower cost structures (Accenture, 2016).

There is a global phenomenon called the 'Fourth Industrial Revolution' that involves unique innovations and digital companies that collaborate and compete with traditional financial institutions. According to a report, collaborative FinTech ventures are gaining more ground over the disruptive (Fortnum et al., 2017; Accenture, 2016), with collaborative funding accounting for 38% of all FinTech investment in 2010 and growing to 44% in 2015.

There is a great variance in the global ratios of collaborative and competitive ventures. The inclination to collaborate has been stronger in the last five years in New York. In a period of six years, collaborative funding in North America grew from 40% to 60% but the reverse was the case in Europe where disruptors' funding grew from 62% in 2010 to 86% in 2015. The Figure below shows that there is a higher proportion of the competition in Europe as compared to North America which generally reflects the earlier phases of maturity of FinTech markets, specifically outside London. The welcoming regulations in London environs has also made the market preferable for the competitive FinTech ventures to try out their new propositions.

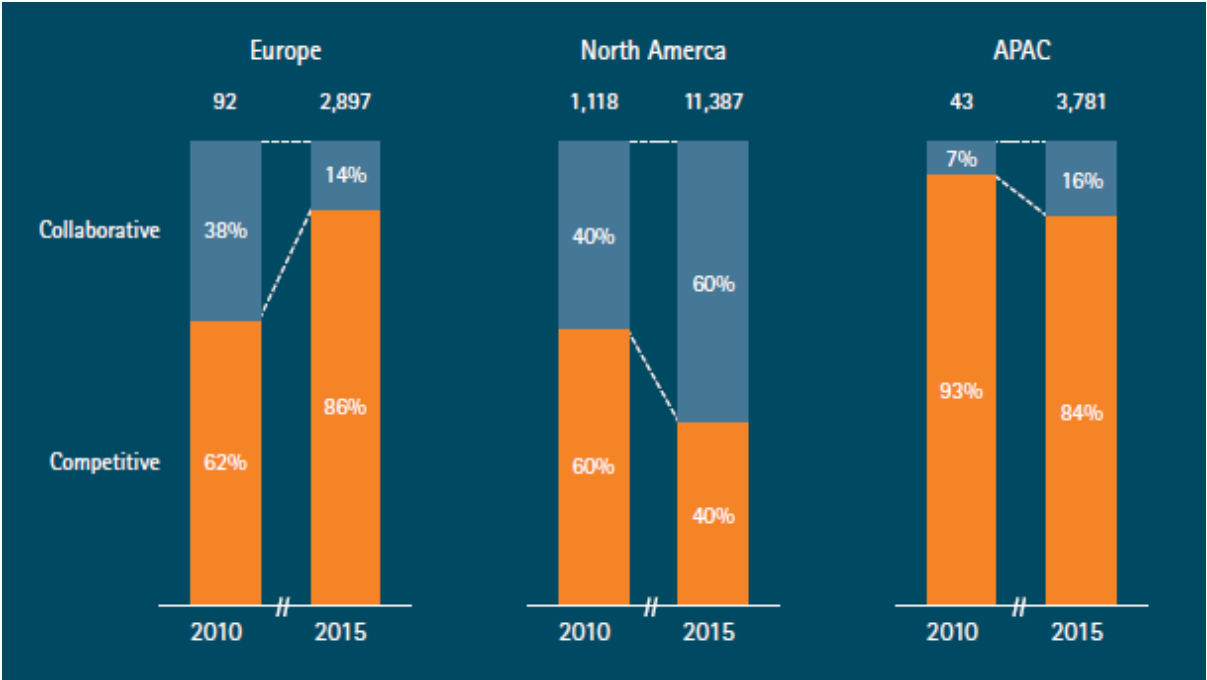


Figure 2.8.2: Collaborative vs Competitive FinTech investments (2010-2015) (Accenture, 2016).

### **2.8.3 Regulatory and Legal Factors in adopting Disruptive Technologies.**

The drive for innovation in this Fourth Industrial Revolution is fueled by "disruptive technologies". Nonetheless, with the pace of globalization, this poses a challenge to the traditional legal frameworks that are not known to make a quick adjustment to the technological inventions, increased pace, territorial disconnection, and mobility of people, services, goods, and data. It's worthy of note that there has never existed a single model legal framework to guide disruptive technologies. To facilitate the adoption of disruptive technologies in emerging market economies and also categorize the issues that may likely pose as obstacles, a supplementary and proper regulation which should form part of a wider legal framework encompassing platform or industry-led standards and norms should be created or introduced. The standards and norms formed and propagated by private actors are a major component of the framework that will govern disruptive technologies and facilitating the fast entry and adoption of new technologies. There is the need to align them with the mandatory laws of the nation-states and its fundamental principles in a bid to obtain legitimacy and authority. The distinction between developing and developed world, despite never having a clear-cut meaning, is as well not very beneficial for development purposes. The starting point that has been increasingly used in addition to -use of regional grouping- is based on income levels: High, upper-middle, medium, and low levels, having the low and medium levels classed as "developing countries" (Walden and Christou, 2018; World Bank Group, 2020). Any further country grouping beyond this will depend on the motives and objectives for making the division. Since this research is purposed to boost and sustain economic development in Nigeria, the concerns of low and medium income will be highlighted and referred to as "emerging market economies".

The buzz word "disruptive technologies" covers a wide range of technologies and applications that are either already in use or emerging, these include but not limited to FinTech, RegTech, distribute ledger technologies such as smart contracts and cryptocurrency, cloud-based technologies, the internet of things (IoT), nano-technology ad artificial intelligence.

The fact that innovation usually comes from the private sector does not mean the public sector will not acknowledge it relevance. In addition to private-public projects, the government is also able to deploy technologies to boost its efficiency, accessibility, and transparency of service



delivery (Walden and Christou, 2018; White, Killmeyer and Chew, 2020). In the case of initial technology being imported, local technical capacity is expected to increase so the innovation can come from within the country.

## **2.9 FinTech drivers.**

The emergence of FinTech naturally came about because of life-changing occurrences in the financial industry and by the change of our living pattern. FinTech adoption across countries vary notably. Not only does the adoption vary across countries, but also cuts across cities within a country. While cities like Seattle, Hangzhou, and Tel-Aviv have unexpectedly become hotbeds of FinTech activities, some other traditional financial centres like Milan and Tokyo have fewer activities than would be expected by virtue of their position in other areas of financial services (Cambridge Judge Business School, 2018). Consequently, there have also been several opinions on what the drivers of FinTech are. The 2008 GFC has generally been seen to be the reason for the upsurge of FinTech growth. FinTech companies have continually sprung up around the globe since the global meltdown. Other research showed that FinTech adoption is because of a combination of several major forces as elaborated below.

### **2.9.1 Regulatory environment**

Several studies have shown how the regulatory environment can either boost or hinder the growth of FinTech adoption. While Rau (2017) and Cambridge Judge Business School (2018) showed that countries with stronger quality of regulation, rule of law, ease of entry, control of corruption, and higher profitability of existing intermediaries have larger volumes of alternative finance, Frost (2020) found that countries with less strict bank regulations and more permissive entrants' policies, as evaluated by World Bank index seem to have higher FinTech investments. Claessens et al. (2018) also added that such countries have higher FinTech credit volumes. CCAF (2019) agreed with Claessens et al. (2018) by stating that countries where regulations

were judged to be adequate (not excessive or inadequate) recorded higher alternative finance volumes.

While these facts do not show that FinTech adoption is driven by regulatory arbitrage, certain activities are surely driven by regulatory arbitrage to a certain level. Such is seen in the findings of Braggion et al. (2018) who stated that Peer-Peer lending in China increased in the cities that tightened loan-to-value (LTV) ratios, steady with borrowers utilizing Peer-Peer credit to bypass the regulations.

In the United States mortgage market, higher regulations directed to the traditional banks can be said to be responsible for up to 55% growth of non-bank lenders (including FinTech lenders), as well as growth in credit contracts and non-bank credits, all being after the introduction of macroprudential policies (Buchak et al., 2018; Cizel et al., 2019). Similarly, Duijm et al. (2019) and Reihardt and Sowerbutts (2015) have shown that foreign insurers and banks grow borrowing in countries where regulation limits traditional bank lending.

Owing to its diverse and vast human resources, Nigeria has the abilities of placing itself as one of the largest FinTech hubs in the world, but unfortunately, it does not have a comprehensive legal Fintech framework, and the present FinTech regulations are not adequate to provoke seamless expansion and innovation of the industry.

### **2.9.2 Unmet basic banking demand.**

Over 1.7 billion adults across the globe and mostly in the emerging markets and developing economies (EMDEs) remain unbanked and still rely on cash for day-day transactions (Demirguc-Kunt et al., 2018; Frost, 2020). Over 40% of the Nigerian adult population are without access to basic banking services (PwC, 2020). This has been closely associated with the enormous size of unregistered economic transactions popularly known as 'the informal economy' (Hart, 1973). Even among the bank account owners, services such as insurance, credit, and wealth management may not be accessible or affordable for the consumers. In some advanced economies, there are certain groups, which may include religious and ethnic minorities, refugees and migrant workers, that have no access to these basic banking services. Research has shown

that lack of access to basic banking is a FinTech adoption driver which has helped in expanding the availability of financial services, and if well taken advantage of, is able to rapidly grow and establish FinTech operations such areas. The most popular example is the M-Pesa, a mobile money system launched in 2008 by Kenya's telecom provider Safaricom. M-Pesa is now so popular that it operates in multiple countries across North Africa, East Africa, and South Asia, with over 32 million users as of 2018. Other locations of unmet banking demand fulfilled by FinTech services offerings are found in countries like Latin America, Southeast Asia, and India (Frost, 2020). Frost (2020) stated that in China, FinTech credit mitigates supply frictions (far distance between borrowers and the closest bank branch) and lets firms with lesser credit score to have access to credit.

With Tang (2019) noting that FinTech credit complements lending for small scale loans, Jagtiani and Lemieux (2018) also found that a lender, lending Club, had penetrated areas that have been underserved by the conventional banks. De Roure et al., (2016) also reported that in Germany, FinTech credit serves a part of the consumer credit market that has been ignored by German banks. Frost et al (2019) has also added that 35% of the small-time borrowers found on Mercado Libre (a large tech e-commerce platform) would not qualify for bank credit based on their credit bureau scores.

A look at all the above has proved beyond doubts that big tech credit is more common when there exists a low density of bank branches as compared to the population. Cross-border transfers, or remittances, is also part of this trend. Remitting cash had always been very slow and expensive, especially for workers that send money to their families in geographically remote areas. This is mostly found in the EMDE's. The average cost of sending \$200 to EMDE is 6.84% or \$13.68 (The World Bank, 2020). FinTech providers have gained a relative grip in remittances services, especially cross-border payments, as the deterioration in correspondent banking relationships has recently been a source of concern (Financial Stability Board, 2019; Frost, 2020).

Overall, available evidence indicates that FinTech is thriving where the current financial system does not meet the demand for financial services, and in many cases, FinTech innovations may require high initial investments but a lower cost per every new customer relationship (Philippon,

2016). While FinTech activities are bigger in total terms in wealthier countries, the above reasons may be the reason behind their greater relative significance in some EMDEs, as a portion of economic activity.

### **2.9.3 Declining trust in financial institutions and demographic force.**

The banks have monopolized the financial services for very long and they did not have any competition, they refused any change as it was more convenient and profitable to do so, and this allowed them to operate clandestinely, charging high fees for services (Gelis and Woods, 2014). Annoyance towards the established financial systems especially banks and widespread lack of trust in banks. Banks also stopped lending, and this caused businesses to begin contending with the refusals on credit lines and bank loans. Mortgage and personal loans were also turned down. FinTech is seen as an alternative to the traditional models because of innovative financial practices through newer models being created because of experiences from past insolvent loans and financial crises (Fortnum et al., 2017). A vital shift towards 'distributed power' is happening, where people are moving towards a world of distributed, connected communities from a society with businesses that had placed its trust in a top-down centralized institution. There is a decline in the trust levels in these institutions, which has given rise to the 'review community' whereby consumers are more comfortable placing their trust in the opinion of strangers (FinTech). These review communities aid in shaping customers' opinions of financial institutions and their products and services much more than the information given by the institutions' website. FinTech's early embracers are basically, the millennials. A Vision Critical review of 2015 revealed that millennials are not big fans of banks and as such, are likely to put more trust in tech companies to manage their wealth (Vision critical, 2012). See Appendix 2.

Having trust in technology by different age groups is a likely factor of FinTech adoption. Just like the bailout of banks by the British Government was referenced in the 'genesis block', which is the initial piece of code underlying Bitcoin, it has also been stated by a FinTech company executive that FinTech, like millennials, was molded by two key factors: the 2008 global financial crisis and technology. There would not be a neater confluence of GFC and technology

as this, and as such, it's no coincidence that the 'digital natives' or millennials are ardent users of FinTech (Kolodny, 2016; CGFS and FSB, 2017).

Results from a survey conducted by EY (2017) confirmed the younger generation are those driving FinTech adoption in a range of territories, with a global statistic of 48% digitally active users among those aged 25 to 34 years as compared to only 9% of the older generation. This is seen in countries like India, Colombia, and South Africa where there is a high population of the younger generation. On the other hand, Bech et al. (2018) found out that there was more use of cash in countries with older population, but some exceptions were recorded in places like the United States where the credit bureau data has shown that a majority of online marketplace borrowers were from the older generation (Generation X and baby boomers). In a similar development, Baeck et al. (2014) found that over 55% of UK business and consumer lending patronage came from the population of 55 years and over, while the age bracket of 35-54 years made up over 60% of the fund's beneficiaries. Globally, Nigeria has one of the highest youthful populations, with over 50% of its population below the age of 25. This is the naturally savvy group that is more likely to adopt technology faster.

#### **2.9.4 Cost of Finance and Macroeconomics**

It had been noted that FinTech adoption is higher in countries where financial services are comparatively more costly, or where competition amongst providers is low. Philippon (2016) examines the comparatively high and stable 'unit cost' of finance in the United States over a period, and the ability of FinTech to provide better efficiency. Despite the advent of electronic trading in financial markets and computers, financial services have remained expensive throughout the last decades. Recent surveys suggested that competition from bit-tech companies and FinTech have been leading the incumbents to launch new products (Petralia et al., 2019; Financial Conduct Authority, 2019; Frost, 2020). Although it remains unknown how this competition influences the aggregate Figures on finance cost, Bazot (2018), as well as Classens et al. (2018) have shown that financial services are adamantly expensive in various economies, especially in countries with higher average income (which reflects economic development) and where the traditional banking sector has higher mark-ups (which measures market power echoes little competition). While several cases indicated that network effects are likely to support higher

concentration in the provision of FinTech services (Evans and Schmalensee, 2016), some studies have found little evidence of the effect of networks (Tucker, 2019).

It has also remained uncertain if the post-2008 GFC's unconventional monetary policies of central banks have supported the adoption of FinTech as a study by IMF in 2014 revealed that the increase of shadow banking across the globe is associated with low-interest rates after 2008, and stricter capital regulation, amongst other reasons. In summary, there seem to be higher incentives for FinTech adoption in places where the traditional banking sectors are comparatively uncompetitive and consequently more profitable, and new entrants to FinTech can increase efficiency and lower the cost of financial services.

### **2.9.5 Information Technology (IT) Development and Pace of Adoption**

Recent developments have made it possible for big data technology to collect large amounts of data, both standard and non-standard, with mobile devices and as such, FinTech has utilized that advantage to expand on loans and asset management and credit analysis (Gelis and Woods, 2014). The recent adoption of technology by consumers is at a high pace, with fierce competition between players. The penetration of telephones into 50% of American households took five decades but less than five years for mobile phones to achieve the same results (Fortnum et al., 2017).

### **2.9.6 Financial Inclusion, Competition, and Risk.**

Technological advances such as cloud computing, smartphones, and big data analytics are found in many economies across the globe, but greater adoption of these innovations in financial services are clustered in markets that have common characteristics. Different economies have different implications of the adoption:

- In economies where FinTech contributes to enhancing financial inclusion, there is likely to be a positive economic growth and development. Levine (2005) has written about the link between

economic growth and finance, as also agreed by Sahay et al. (2015). The only likely product where a mixed picture may be found is the credit services. Credit services may be a way of expanding access to finance for SMEs, but excessive lending may pose a problem (CGFS and FSB, 2017; Frost, 2020).

- While some FinTech firms begin by focusing on a single economy, some directly head for cross-border extension and the replication of other successful FinTech business models in different markets. These cross-border integration support higher diversification and risk-sharing across economies, as well as help in reversing some decline in cross-border pre-GFC financial activities.
- In as much as FinTech innovations are able to sometimes overcome particular market failures, (e.g., by decreasing information irregularities, transaction costs, etc.), FinTech activities still remain subject to the same recognised risks that have been traditionally present in the industry. Example of such is when activities like deposits remain subject to liquidity mismatch and the possibility for bank runs, despite that they are being offered by non-banks, and new financial assets being subjective to speculative bubbles (Kindleberger and Aliber, 2011). A big tech or FinTech that achieves a big enough scale, risks potentially becoming systematically significant, which might result in moral hazard with excessive risk.
- Market shocks are likely to be transmitted through institutions and markets due to new forms of interconnectedness that includes operational dependencies and managing such risks will be the responsibility of the public sector authorities.
- The behaviour of the consumer plays a major role in the evolution of FinTech. There is a transition of power going on: from corporation to consumers, and this control shift is aided by technology: Our relationship with financial activities is changing in the same way as the newspapers and music industry (Fortnum et al., 2017). All these were built on the evolution of internet and services have become faster, convenient and cheaper. The environment is such that people can buy/sell goods and services, and consummate various transactions at the comfort of their own homes via mobile apps and other devices connected to the internet (Gelis and Woods, 2014).

### **2.9.7 Digital and mobile devices.**

In the past, daily tasks were performed in the conventional traditional way, but technology has progressed, and this has changed. There has been widespread computerization of processes; proliferation and adoption of mobile devices, explosion and implosion of data, which is fueled by the social media platforms, and this has redefined customer service experience. Artificial intelligence, robotics, and the Internet of Things (IoT) are also anticipated to have a significant impact on delivery of financial and banking products and services (Fortnum et al., 2017).

### **2.10 Global Investment**

The Financial Services sector is rapidly growing, and the forces responsible for this change has altered the role of financial industries from being just providers of financial products and services to enablers of products and services. Venture capitalists, corporates, private equity firms, and many players have heavily invested into FinTech start-ups and that has redefined the way people save, borrow, invest, spend, and protect money (Accenture, 2016). Even as quantifying the growth and size, and its effect on the banking industry is hard, as the necessary data are mostly lacking, one growth index that can be used is the venture capital investments in the FinTech industry. In addition to the Venture Capital (VC) investments, which are basically backed by financial institutions, other institutional investors and banks have also made direct and large investments in FinTech companies (Bank for International Settlement, 2018; Fortnum et al., 2017). However, according to an Accenture report of 2016, the global FinTech investment driven by 'deal-flow' across Europe and Asia-Pacific grew by 75% and outpaced venture investment, which grew, in contrast, by just 29% in 2015 (Accenture, 2016).



**Total investment activity (VC, PE and M&A) in fintech  
2014–2019**

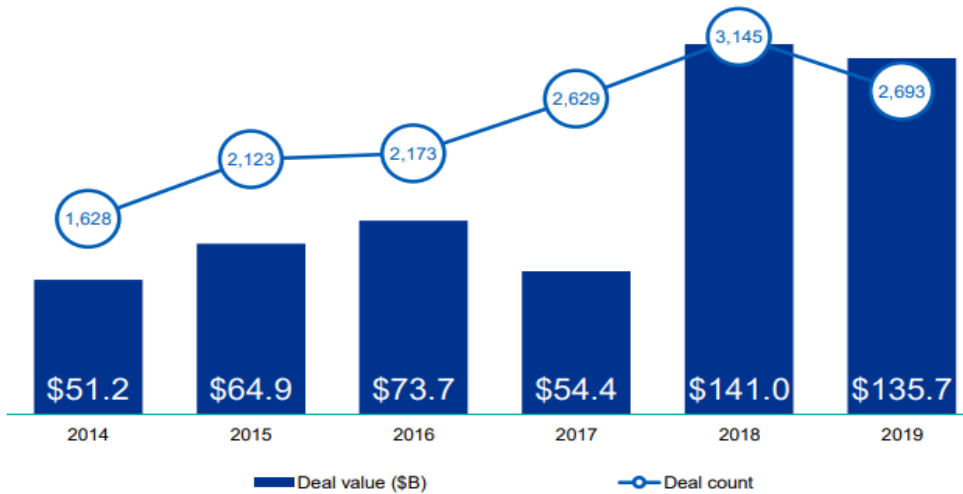


Figure 2.10.1: Global FinTech investment analysis (Pollari and Ruddenklau, 2020).

Global investments saw a decline in 2017, and this could be an indication that the passion for FinTech reached its initial peak of the 'hype cycle' (Fig 2.17). The peak of the cycle simply means that there is every possibility of overestimating the implications of new innovations and technologies in the short term while underestimating its long-term implications (Brinker, 2018). Despite the hype, Basel Committee on Banking Services reported that the significant number of financial products and services and large size of innovations derived from FinTech are currently low in volume as compared to the global financial services sector and as such, there is room for more innovations and growth. This had proved to be true with the volume recorded in 2018 and 2019, which also mimics the hype cycle.



Figure 2.10.2: Hype cycle showing the five phases of a technology's life cycle (Brinker, 2018).

The hype cycle shows the maturity and adoption of technologies and applications, which is typical of most technological innovations. An example is the internet, which went through a boom-bust cycle within the century, and with the dot com bubble burst in 2001, it blew away a lot of major marketplaces. The internet then became the main platform for business and the global population cannot envisage living without it.

By the end of the fourth quarter of 2017, global FinTech funding was over the \$31 billion mark, bringing the total global investment over the past three years to \$122 billion (Pollari and Raisbeck, 2018). The graph above (Figure 2.10.1) shows the growth trend of FinTech sector investment from 2014 in terms of Venture Capital (VC); Mergers and Acquisitions (M&A) and Private Equity (PE). Appendix 3 shows the individual growth indices and the number of deals closed. Though the number of deals declined in 2017, the total deal value was impressively high (Pollari and Raisbeck, 2018), and 2018 and 2019 proved to be promising.

### 2.10.1 Fundamental building blocks for FinTech success

A study of forty-four FinTech hubs around the world by Deloitte listed the factors that comprise the fundamental building blocks for FinTech hub to thrive. The ability of a FinTech organization to access capital, demand, talent, and progressive policies and regulations that are built to enable the growth of FinTech is directly related to the strength of the hub. These factors are briefly explained below (Brett, 2017):

**Talent:** This is the ability to attract, develop and retain talents as it applies to these three domains of FinTech that will also lead to success on a global scale: finance, entrepreneurship, and technology. Other peripheral but important talents include marketing and business development skillset and legal. The mix of all these talents cultivates a culture of innovation that forms an enormously powerful pull factor which serves to appeal and retain talent at a global level.

Even as most European hubs agreed that there was good access to talents in their hubs, this access was not popular across other areas of the globe such as Asia, which cited technology skills shortage (e.g., software engineers and developers) was a specific challenge in their hub. The recognition of the importance of talent pipeline development and sustainability led some hubs to implement programmes and policies that will improve access to FinTech talent. Example of such includes a government-led programme known as the Hongkong's FinTech Career Accelerator Scheme, which organizes the placement of highly educated students in FinTech start-ups, financial organizations, and regulatory authorities; and the UK's Tech Nation Visa which empowers tech talent from around the globe to work in the UK's digital technology segment.

**Capital:** To raise an investment, start-ups need seed and scale capital to develop and grow their ideas. As such, access to capital, be it from governments, corporates, or private investors (e.g., venture capital, private equities, or angel investors) is a major driver of FinTech activities across hubs. Venture capital investment deals, being the well-recognized source of capital, are seen by the industry as a reliable barometer for the state of FinTech activities across hubs. Therefore, higher volumes and values of VC investments result in higher levels of FinTech activities. Furthermore, in addition to start-up and scale-up funding, investments are also required to fund

other initiatives such as non-profit sandboxes, accelerator and incubator programmes that promote collaboration within the ecosystem. Total FinTech investment in the Americas rose to \$54.5B in 2018 from \$29B in 2017. Europe had a total investment of \$34.2B in 2018, rising from \$12.2B in 2017. While Asia Pacific had a total investment of \$22.7B in 2018 as against \$12.5B of 2017 (Blackman, 2019).

**Demand:** Like other industries, demand is driven by supply in the FinTech sector. These demands for FinTech products come from other businesses (B2B), or from customers (B2C). The more established financial services activities are within a hub, the more probable it is for the hub to have a sturdier FinTech market. This is attributable to the fact that the consumers in such markets are more educated towards FinTech activities and so consider it harmless to venture into trying other new FinTech products and services. Example of such is Barclays' setting up of its RISE programme in major financial centres such as New York and London. In as much as it is a success factor for places such as Chicago, Hong Kong, London, New York and others, there are exceptions to this rule of strong financial industry equating to strong FinTech hub. An example is Tokyo which has a strong financial service industry and regulations amongst others, FinTech take-off has been slow compared to other FinTech hubs (Brett, 2017). A further study conducted across the globe by Brett (2017) which reported that hubs that were surveyed to have good access to FinTech demand, had one-third of the hubs getting much of their demands coming from outside of their local market which highlights the global nature of FinTech. This case was particular to smaller hubs such as Auckland and Lisbon.

**Policy and Regulation:** Elaborated in subsequent chapters, these are key factors that contribute to the success of a FinTech hub. There is a need for the government and regulators to strike a balance between effective competition and promoting innovation, while still protecting consumers and investors. These establishments are responsible for the provision of frameworks, policies, and procedures that both safeguard and encourage FinTech within the hub. Two of the world's leading FinTech hubs, London and Singapore are examples of where supportive regulations (Financial Conduct Authority and Monetary Authority of Singapore respectively) from their progressive regulatory bodies have been recorded. The regulators put up initiatives that encourage FinTech collaboration within their hubs such as accelerator programmes, FinTech offices, international agreements, and sandbox environments where financial institutions and

FinTech can test innovations with less arduous regulations. The FCA and MAS led a new wave of FinTech growth and were regarded as pioneers, with the UK gaining from the first-movers advantage by setting up Sandbox to support FinTech. By 2017, fourteen regulators around the globe, including Bahrain and Lithuania, had either replicated or planned to replicate the FCA in their various jurisdictions.

Governments also play significant roles in establishing FinTech growth. An example is the government of India where established programmes and policies are provided to aid the development of FinTech and start-ups in the country. Other programmes by the government of India included the start-up programme with tax exemption, simplified regulatory processes, mentorship opportunities, patent reforms and government funding for start-ups, as well as introducing nationwide unified payment interface, a central digital base that aids in making e-KYC be economically completed and to demonetize banknotes. All these were implemented to support the growth of FinTech in India.

### **2.10.2 Global FinTech Cities and Hubs Ranking.**

Being the latest promoter of global financial and economic development, FinTech is fast becoming a focal point for each country to kindle their economy and as a result, a new FinTech landscape is emerging. Consequently, the significance of innovative environment, regulatory capabilities, and availability of digital infrastructure that are fundamental to the development of a sustainable FinTech has attracted a growing awareness. Although Brett (2017) named four important building blocks in the previous section, both Brett (2017) and Cambridge Judge Business School (2018) have it that capital and regulation have important roles to play in the growth and sustenance of FinTech. A 2018 report by Cambridge Judge Business School named the top 30 FinTech cities across the globe, with Beijing topping the list. On the list (see Figure below), China was the only developing country and it had 7 cities on the list, followed by the USA, which came first in terms of digitization of the traditional financial sector. Appendix 5 shows the top 10 FinTech hubs and their respective strengths. Findexable (2019) also ranked the FinTech cities and hubs (see Figure 2.10.4) which seem to have very same cities and countries

topping the list. The ranking in Figure 2.10.4 were calculated based on three metrics (Findexable, 2019).

- **Quantity**- This is the size of FinTech ecosystem and their supporting structures, comprising of number of FinTech hubs, FinTechs, accelerators, co-working spaces, country’s population, and global influencers.
- **Quality**- Performance-Impact, comprising of growth of FinTechs, size, events, international collaboration, website ranking and value generation.
- **Environment**- Ease of conducting business, regulatory environment and critical mass, to include incentives for start-ups, regulatory interventions that will improve a competitive environment, payment portals, FinTech courses and internet censorship.


Country /Region	City	Rank	Country /Region	City	Rank	Country /Region	City	Rank
	Beijing	1		Singapore	11		Sao Paolo	21
	San Francisco	2		Berlin	12		Paris	22
	New York	3		Atlanta	13		Seoul	23
	London	4		Tokyo	14		Los Angeles	24
	Shanghai	5		Stockholm	15		Guangzhou	25
	Shenzhen	6		Bangalore	16		Mumbai	26
	Hangzhou	7		Boston	17		Dublin	27
	Chicago	8		Toronto	18		Nanjing	28
	Sydney	9		Tel Aviv	19		Zurich	29
	Hong Kong	10		Seattle	20		Amsterdam	30

Figure 2.10.3: Top 30 FinTech cities (Cambridge Judge Business School, 2018)



Figure 2.10.4: Top 20 FinTech cities and Hubs (Findexable, 2019)

These rankings seem to prove how much the old-world economies are coming together with their fellow counterparts in the emerging market regions. Two clear points have emerged from these rankings:

- Cities that have been traditionally the top of the list as financial centres such as Shanghai, Frankfurt and Zurich are being replaced with FinTech cities such as New Delhi, Mumbai and Sao Paulo, indicating the comparison of global FinTech status and global financial centres.
- One exciting outcome of the ranking is the breaking of the presumed connection between a city's positions as global FinTech and as a start-up city. Figure 2.10.5b shows the contrast between start-up cities ranking and FinTech hubs. The ranking has shown that a start-up city's status is because of the reflection of the strength of its FinTech community. Of the 40 FinTech hubs traced by the index, almost half are in a lower position as a FinTech hub when compared to their global start-up indices' ranking (Findexable, 2019).

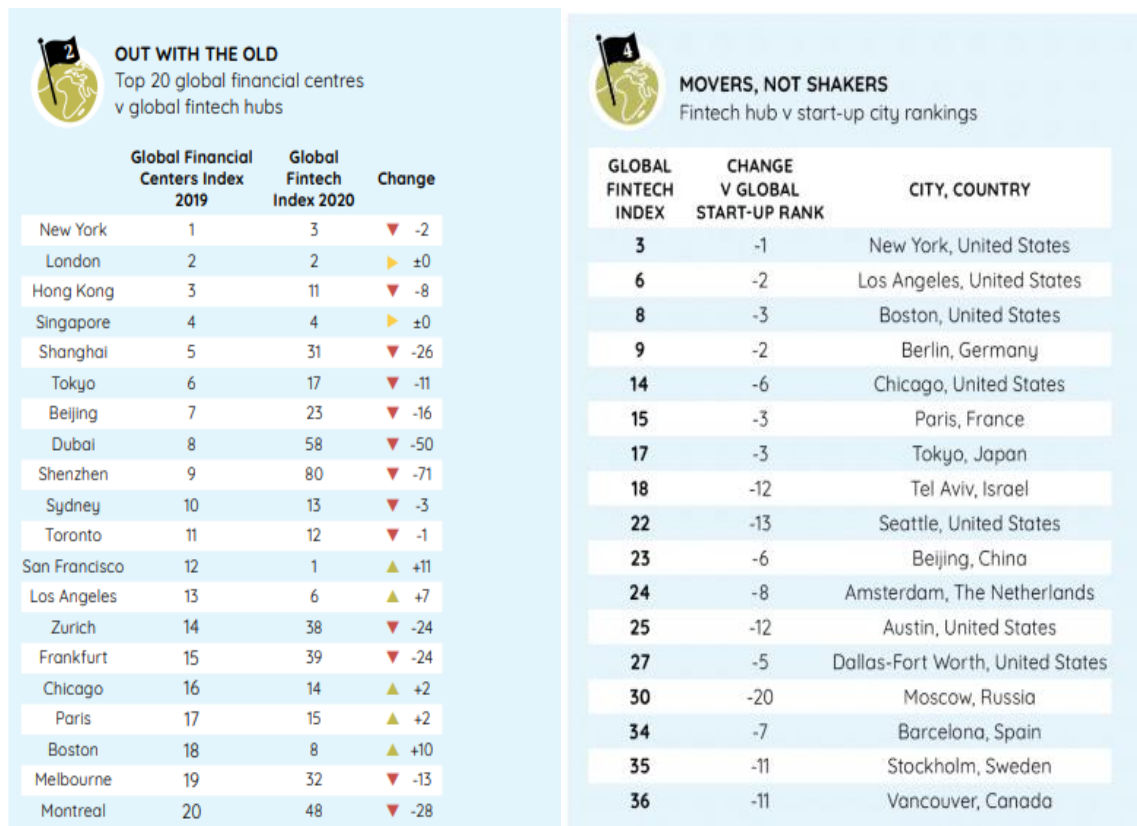


Figure 2.10.5 (a & b): Comparison of top 20 FinTech cities and Hubs (Findexable, 2019).

After a study of start-up failures in USA and China, 'Institut European d'Administration des Affaires', INSEAD, a business school came up with the common factors that are generally responsible for the failure as listed below (See appendix 6 for detailed analyses and the companies involved) (Foo et al, 2017).

- Operational efficiencies
- Poor market understanding
- Product/market misfit
- Competition
- Poor product development
- Misevaluation



### **2.10.3 Global FinTech Critical Success Factors (CSF).**

Some academic articles have described critical business models success factors, where some researchers have pointed out the importance of product value and innovation (Groenwegen and Langen, 2012) or product and market fit (Ries, 2011) as critical to the success of a venture. While some researchers highlighted FinTech success factors in single areas (Roder et al., 2018), there still is no variation for CSF meant for business models, and specifically for FinTech. Besides these interrelated concepts for success, most works studied addressed certain sections of general business models such as the entrepreneur as an individual and their association with investors (Drover et al., 2017) or product worth (Shafer et al., 2005; Buddelmeyer, 2009). Critical success factors are described by the scopes of the organization's operations such as circumstances, events, and activities that are necessary for its success (Soetanto and Jack, 2013; Bruneel et al, 2012). Notwithstanding, there still exists a gap in thorough FinTech-specific success factor investigations, and the 'dynamic development of FinTech field creates a need for future investigations' (Eickhoff et al., 2017 p. 17).

In talking about CSF, Venture Capital (VC) is one of the key ingredients, which drives the huge growth of the FinTech industry. VC provides a kick-start for a lot of FinTech start-ups and is an important driver of innovation for both the financial service industry and the overall economy as a needed source of equity to transform ideas into disruptive solutions, that meets the demands of present-day customers (Fried and Hisrich, 1994; Cumming and Groh, 2018).

There are several reasons why businesses fail. Such failures may either be because of poor business plans, poor management, poor location, lack of inventory, uncontrolled growth, poor financial control, lack of funds or experience, lack of a strategic plan, and many others. Sandberg (2008) stated that for an innovation to be successful, it will have to satisfy the needs of customers, even though it is still not clear who the customers will be. A research of techno starters in the Netherlands stated that only 67% of such companies survive after 5 years. (Timmerman et al, 2010). Outlined below are some critical success factors as researched previously:

- Latest technology is one of the main success drivers of FinTech start-up (Arend, 1999; Dosi,1982). Financial markets have often used modern computer-based technology by application of trading algorithms (Government Office for Science, 2015)
- FinTech start-ups are successful in countries with fragile banking division.
- Start-ups are more common in countries with high mobile phone subscriptions. Most users are found in developing countries where financial services are not easily accessible (Ernst and Young, 2014)
- Larger labor markets attract successful start-ups. This has been supported by empirical evidence (International labor Organization, 1990)
- FinTech start-ups are common in countries with a high unemployment rate. This decision is usually made based on income choice (Blau, 1987; Evans and Jovanovic, 1989; Evans and Leighton, 1990)
- If the Figure of entrepreneurial positions that can be filled by FinTech innovations in the economy is high (Thorton, 1999; Choi and Phan, 2006), and the business model and services delivered by the financial industry are outdated, there is likely to be a demand for new start-ups.

A close look at FinTech firms and their business models has revealed that start-ups operate within regulated and complex markets and as such, **trust** is of primary importance and consequently considered a CSF (McKenzie, 2015). While it is critical for FinTech organizations to have the ability to handle **regulatory requirements** (Gulamhuseinwala, 2016), they should also acknowledge that regulation can be an advantage for them (FinTech) because it makes it more difficult for new competitors entering the market.

Economically speaking, and with regards to customer acquisition as a CSF, although they have higher customer acquisition costs, FinTech organizations are at an advantage as they have comparatively low cost of operations (such as through the usage of existing structures like internet phone messaging services) (Nicolleti, 2017). Additionally, existing FinTech business models can, through **partnership with incumbents**, help new entrants overcome entry hurdles (Allayannis and Cartright, 2017).

Focusing on customer demands (**customer-centricity**) is another critical characteristic of FinTech success as this can significantly distinguish their products from incumbent structures (Dietz et al., 2015; McKenzie, 2015). This is the success factor that judiciously uses and monetizes data to better understand consumer behaviour (Dietz et al., 2015). This is a strategy that helps FinTech to offer better products and services.

Another factor that FinTech heavily depends on is using **technology** to create innovation (Bharadwaj et al, 2013). As such, it qualifies as a CSF since it supports innovation and improvement of product offerings as well as fostering flexibility and agility of the organization (Chesbroug and Rosenbloom, 2002).

Finger and Samwer (1998) however, conducted a comprehensive research into characteristics of CSFs as it concerns 21st-century start-ups where they interviewed 90 entrepreneurs, banks, law firms, and VC firms in Massachusetts and the Silicon Valley. They came up with the following conclusion which identified fifteen CSFs for FinTech venture success, with the first nine commonly applying to general ventures and the last six with relevance to FinTech venture success:

1. Team
2. Entrepreneur
3. Capital
4. Product/market fit
5. Idea and execution
6. Pivoting and continuous learning
7. Customer acquisition
8. Internationalization
9. Networking

10. Technological advantage

11. Regulatory knowledge

12. B2B focus

13. Incumbent partnership

14. Growth potential

15. Exit options for VCs.

Drummer et al (2016) also studied 1,500 FinTech companies considered to be successful and found that the reasons for their success included being:

- Innovative and having less to do with regulations, agile on service delivery, and being lean on resources. They also develop new services such as cross-border peer-to-peer payments, robo-investment platforms, and almost all these processes are based on algorithms and no human intervention required.
- Focused on individual segments of the value chain, i.e., keeping a low entry barrier and being interested in volume of transactions. They also significantly cut transaction fees.
- Targeting private customers as setting up private transactions are less complicated than corporate.

A summary of KPMG's analysis of successful factors is represented in the Figure below:



Figure 2.10.6: Attributes of a successful FinTech hub (KPMG, 2016)

Conclusively, the factors mentioned above are sub-sets of the fundamental building blocks mentioned in the previous section, and as such validates Deloitte's research outcome of basic FinTech building blocks.

The Figure below shows the FinTech climate assessment reported by Hieminga and Lande (2016). The graph has 73 countries assessed for their financial inclusion need (demand) against the quality of FinTech ecosystem and infrastructure (supply). The dot sizes represent the population sizes, and the colors indicate income levels. The results show that the urgency of FinTech-led inclusion in low-income areas is high, and the ecosystem and infrastructure improved as the country's economy improves.

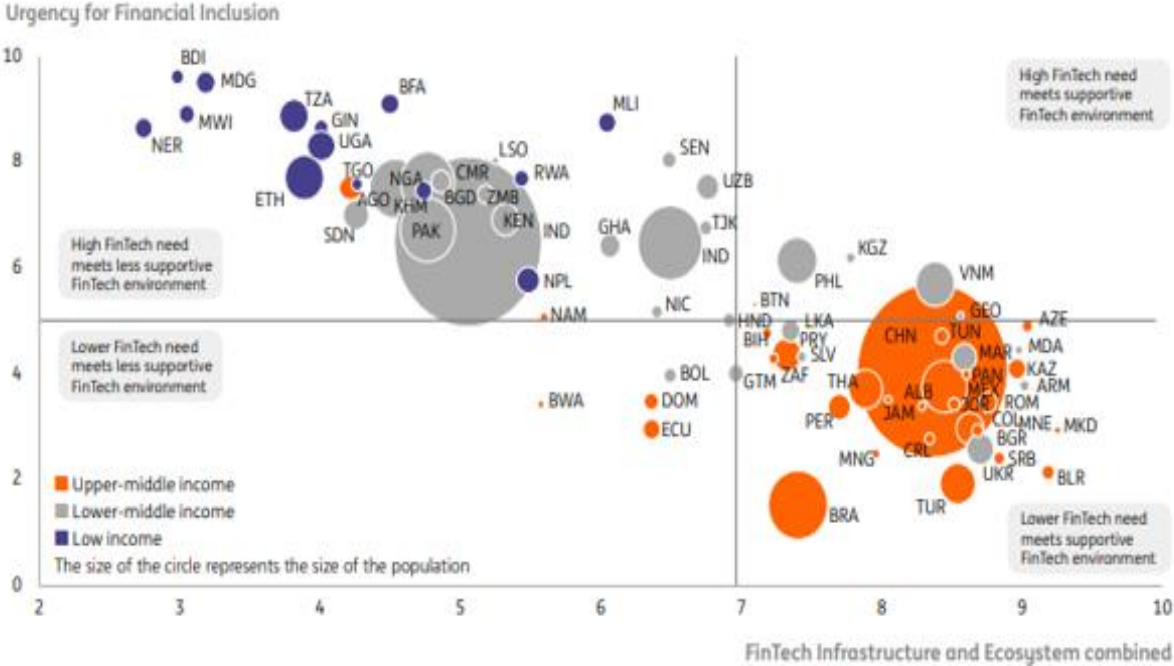


Figure 2.10.7: FinTech demand and supply index results (Hieminga and Lande, 2016)

Figure 2.10.8 shows the results of demand against the countries' risk, which signifies that risk is a very likely factor that excludes countries from FinTech investments. Regulatory and political risks require a country-by-country approach such that different countries attract different types of investments.



2. With the growth of the regulators' familiarity with new technology, so also the scope of their engagement with FinTech changes. Such examples include the SEC Distributed Ledger Technology Working Group in the US that began as a Digital Currency Working Group in 2013 and then significantly extended its scope to cover DLT in totality.
3. The engagement of domestic regulators in cross-border coordination and cooperation in FinTech area. Examples of these include the various 'FinTech Bridges', cooperation agreements, and Memoranda of Understanding. Regulators from Australia, Abu Dhabi, Canada, Hong Kong, China, India, France, Kenya, Japan, South Korea, Singapore, and the United Kingdom have since 2016 entered into such agreements (Didenko, 2018).
4. Domestic hubs are being instituted by regulators to promote the development of FinTech. Some noteworthy examples include the FCA Innovation Hub in the United Kingdom (FCA, 2018), ASIC Innovation Hub in Australia, and MAS FinTech Innovation Lab in Singapore 133.
5. International and supranational organizations are increasingly becoming involved in FinTech regulation. In 2016, the European Commission announced the creation of the Financial Technology Task Force, trailed by a public FinTech consultation in 2017. The Financial Stability Board established the Financial Innovation Network to look at FinTech innovation from the financial stability point of view and the report was published in June 2017, and the International Organizations of Securities Commission ('IOSCO') released its publication 'Research Report on Financial Technologies' in February 2017. The Basel Committee on Banking Supervision in August of 2017 published a consultation paper on the implications of FinTech for the financial sector and the International Monetary fund (IMF) as well joined the FinTech debate and had its report released in June 2017 (Didenko, 2018).

A lot of fundamental challenges remain unsettled despite the multiplicity of approaches to regulate FinTech and the efforts to distinguish the leaders in this area. The current regulatory frameworks have not developed enough to identify FinTech regulatory "best practices".



## 2.11 FinTech in Sub-Saharan Africa

Africa has always been a fertile ground for breeding technologies. With entrepreneurs and start-ups making efforts to ensure that their products are relevant, FinTech has broken the barriers for users that live in remote areas and has helped to facilitate economic growth in many African countries.

While in the developed countries the growth of FinTech is viewed as a threat to the traditional financial services providers, the developing world such as Africa, where models such as mobile banking, big data credit scoring, branchless distribution and machine to machine lending are seen as opportunity to achieve universal access to finance (Lim, Lakhoua & Mazzawi, 2016 p.8).

Africa garnered much attention with its recent progression report in financial technology (FinTech) space and mobile money usage, with the Nigerian landscape having the capacity of emerging the most significant frontrunner in innovation. FinTech has transformed the financial services market in Nigeria in an unprecedented way. The FinTech sectors ranging from digital mobile payments to lending, personal finance and virtual currencies have impacted the Nigerian, and African unbanked population in general, by leaping over the traditional financial services and other delivery constraints in favour of more efficient and cheaper alternatives (Fatah, 2017).

The 2019 exponential growth of start-up funding was over £1 billion as reported by Briter Bridges, WeeTracker and Partech (see Figure below) (Kazeem, 2020). Although the three databases had a slight variation in Figures, which is likely due to the methodology used by the research teams, they have been recorded at over \$1 billion. Figure 2.11.1 below shows the growth from \$200 million in 2015 to \$1.3billion in 2019 as reported by WeeTracker.

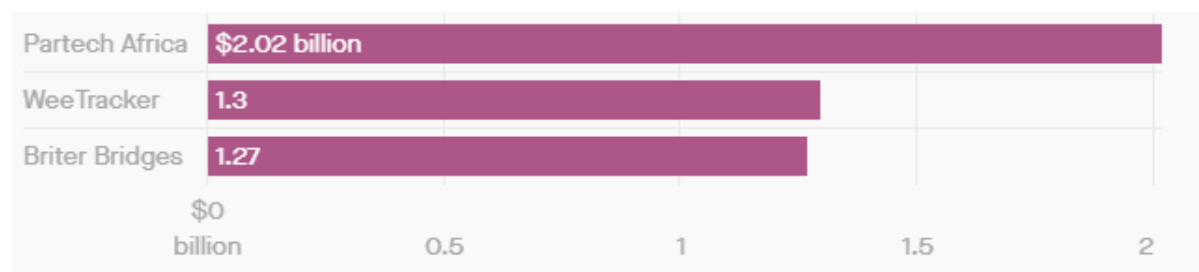


Figure 2.11.1: Africa's start-up funds raised in 2019 (Kazeem, 2020).

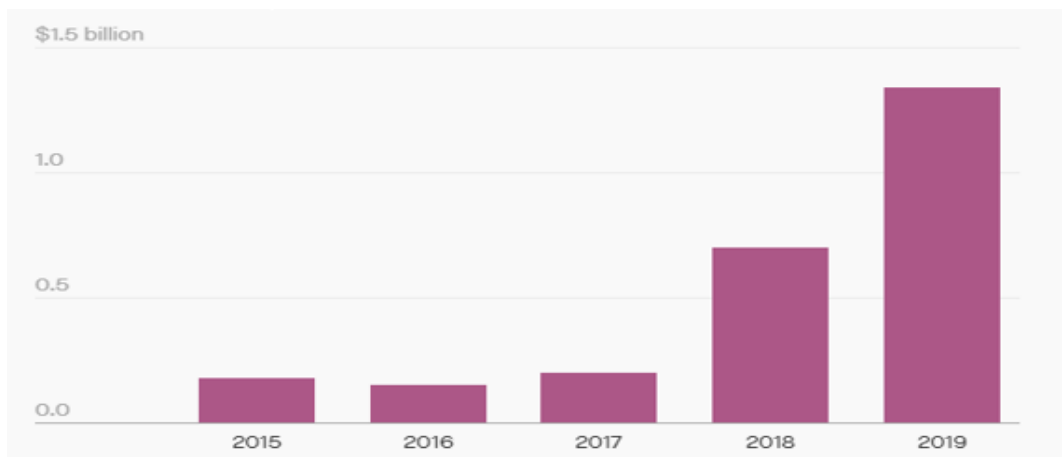


Figure 2.10.2: Annual venture capital investments in Africa (Kazeem, 2020).

The most popular sector of FinTech in Africa is the payments and remittances, that has captured about 40.1% of the market. This is followed by Marketplace lending companies with 15.5% of transactions, both since 2014 (See Figure below) (FinTech Global, 2019).

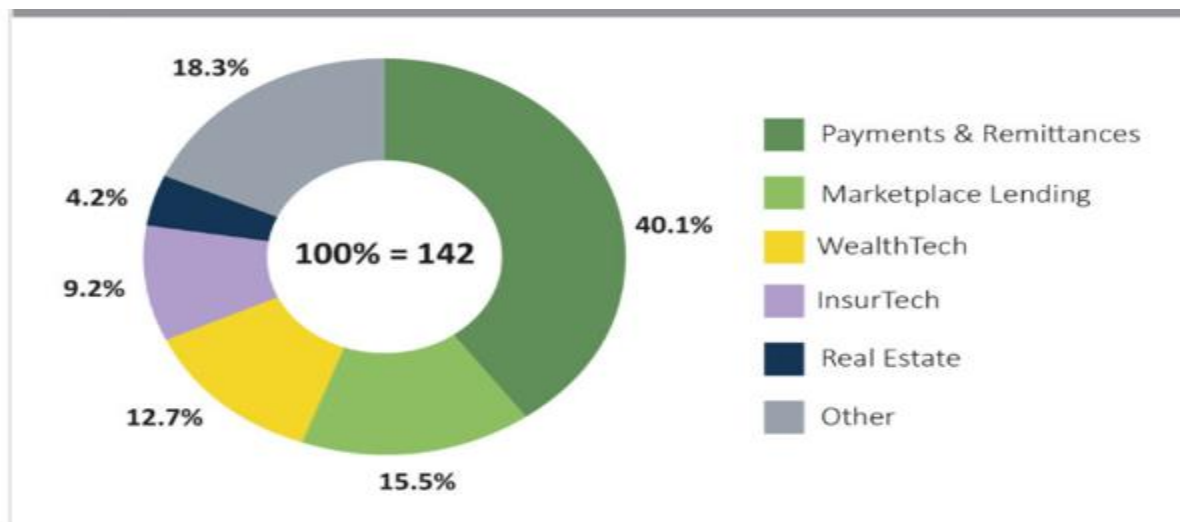


Figure 2.11.3: FinTech Africa investment by subsector, 2014 to H1 2019 (FinTech Global, 2019).

Also, 142 FinTech deals have been completed between 2014 and the first half of 2019 in Africa, with Nigeria responsible for about 27.5% of the transactions (See below).

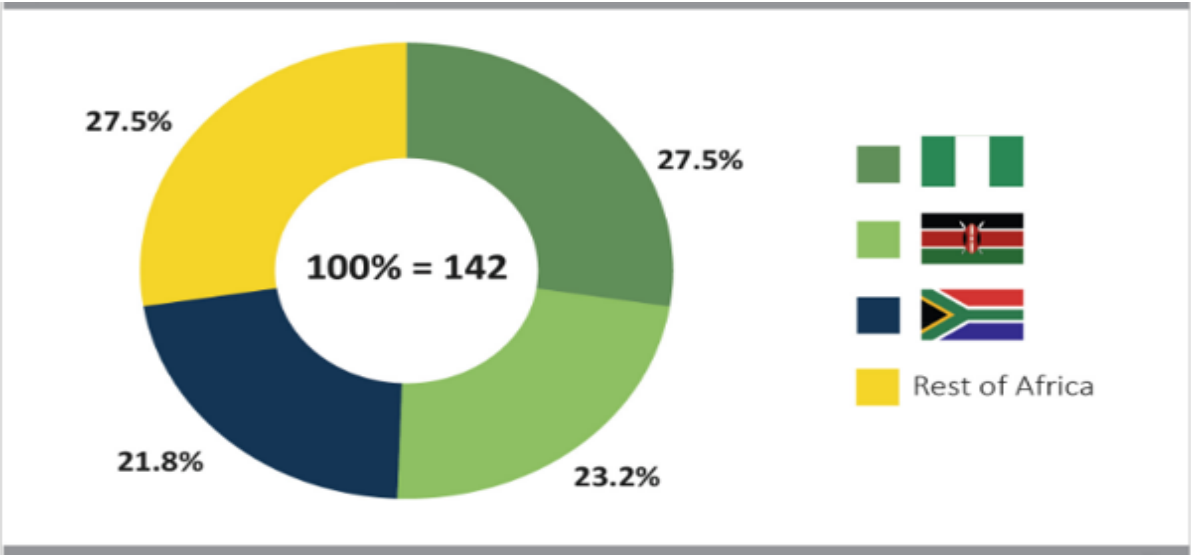


Figure 2.11.4: Africa FinTech deals by country, 2014 to H1 2019 (FinTech Global, 2019).

This disruptive technology, as it is called, has continued to bring about key transformation in the financial services industry with the FinTech start-ups and alternative finance solutions invading the established markets. A considerable number of innovations in the methods of delivering bank transactions, exchange mechanisms and payment methods have been witnessed, with many bank executives continually looking to their IT departments to also facilitate some game-changing innovations and improve efficiency (PwC, 2016).

FinTech innovation will only enhance financial inclusion if it meets the requirements of large numbers of the general public, specifically the poor and working-class people whose everyday finances are basically typified by complexity, improvisation and volatility (McCaffrey and Schiff, 2017). A study of FinTech success in Sub-Saharan Africa shows a clear pattern where the infrastructure needed for FinTech is much more extensively developed in countries that have a 'common law' legal system as compared to the countries with 'civil law' legal system. This is because the common law countries more often than not provide further investor protection and attain a lower cost of capital, as well as greater liquidity for investors, which seem to have

encouraged the growth of FinTech platforms in such nations. The result of the study was presented under several measures, of which, having a financial account, saving money in the past year, and owning an electronic bank card featured in Table 1 below. It showed that the common law countries had average levels of financial inclusion with a weighted average of 54% versus 32% for account ownership, 57% versus 46% for savings accumulation, and 27% versus 8% for electronic card ownership, all in favour of common law countries.

Nation	Legal heritage	Population (millions)	Bank or mobile account (adult %)	Savings in past year (adult %)	Debit card ownership (adult %)
Benin	Civil law	11.1	38%	49%	11%
Burkina Faso	Civil law	19.2	43%	54%	12%
Cameroon	Civil law	24.1	35%	57%	11%
Central African Rep.	Civil law	4.7	14%	40%	4%
Chad	Civil law	14.9	22%	27%	3%
Congo, Democ. Rep.	Civil law	81.3	26%	39%	6%
Congo, Rep. of	Civil law	5.3	26%	46%	12%
Côte d'Ivoire	Civil law	24.3	41%	49%	7%
Ethiopia	Civil law	105.0	35%	62%	4%
Gabon	Civil law	2.0	59%	60%	16%
Guinea	Civil law	12.7	23%	39%	7%
Madagascar	Civil law	25.6	18%	44%	3%
Mali	Civil law	18.5	35%	54%	10%
Mauritania	Civil law	4.4	21%	42%	10%
Mozambique	Civil law	29.7	42%	43%	20%
Niger	Civil law	21.5	16%	25%	3%
Rwanda	Civil law	12.2	50%	64%	5%
Senegal	Civil law	15.9	42%	45%	10%
South Sudan	Civil law	12.6	9%	34%	2%
Togo	Civil law	7.8	45%	45%	13%
Botswana	Common law	2.3	51%	47%	27%
Ghana	Common law	28.6	58%	50%	19%
Kenya	Common law	49.7	82%	70%	38%
Lesotho	Common law	2.2	46%	40%	20%
Liberia	Common law	4.7	36%	68%	4%
Malawi	Common law	18.6	34%	52%	11%
Mauritius	Common law	4.4	90%	60%	74%
Namibia	Common law	2.5	81%	63%	65%
Nigeria	Common law	190.9	40%	62%	32%
Sierra Leone	Common law	7.6	20%	54%	2%
South Africa	Common law	56.7	69%	59%	34%
Tanzania	Common law	57.3	47%	48%	13%
Uganda	Common law	42.9	59%	69%	17%
Zambia	Common law	17.1	46%	59%	20%
Zimbabwe	Common law	16.5	55%	54%	22%
<b>Means</b>	<b>Civil law</b>		<b>32%</b>	<b>46%</b>	<b>8%</b>
	<b>Common law</b>		<b>54%</b>	<b>57%</b>	<b>27%</b>

Table 1: Financial inclusion indicators (World Bank Global Findex, 2017)

Table 2 featured the outcome of the research under phone and internet infrastructure and the nature of government bureaucracy as it concerns entrepreneurs. Other factors included period required to start a new business- which is an aggregate of time spent in payment of fees, obtaining permits and licenses from the appropriate government offices. The statistics show a higher affinity to common law countries once again. Even as technological infrastructure for FinTech seems to be higher in the common law countries, the statistics has shown that regulation and bureaucracy, takes longer for entrepreneurs to scale through. This implies that the regulatory climate is not as favourable for start-ups as it is in civil law nations. But looking at the other side of it, the common law governments appear more committed to monitoring and regulating FinTech providers at a standard level, necessary to win customers' confidence as the greatest perceived risk in the Middles East and the African regions is fraud. The Cambridge Centre for Alternative Finance (2016) wrote that 'The lack of bespoke regulatory regimes and specific alternative finance policy developments is affecting alternative finance industry growth in Africa and Middles east'.

Nation	Legal heritage	Electrical penetration	Internet penetration	Mobile phone penetration	Days to start a new business
Benin	Civil law	32%	33.1%	88.1%	9
Burkina Faso	Civil law	20%	18.8%	79.8%	13
Cameroon	Civil law	63%	24.8%	79.5%	17
Central African Rep.	Civil law	3%	5.4%	27.3%	22
Chad	Civil law	9%	5.0%	39.0%	60
Congo, Democ. Rep.	Civil law	15%	6.1%	49.5%	7
Congo, Rep. of	Civil law	43%	12.0%	104.4%	49
Côte d'Ivoire	Civil law	62%	26.3%	109.9%	7
Ethiopia	Civil law	45%	15.3%	42.4%	33
Gabon	Civil law	90%	47.7%	146.2%	33
Guinea	Civil law	20%	12.3%	89.5%	8
Madagascar	Civil law	23%	7.2%	44.1%	8
Mali	Civil law	41%	65.3%	129.9%	9
Mauritania	Civil law	31%	17.8%	87.5%	6
Mozambique	Civil law	29%	17.3%	71.9%	19
Niger	Civil law	11%	4.3%	45.0%	7
Rwanda	Civil law	30%	29.8%	75.3%	4
Senegal	Civil law	64%	59.8%	99.9%	6
South Sudan	Civil law	1%	17.3%	24.4%	13
Togo	Civil law	35%	11.3%	65.5%	6
Botswana	Common law	55%	39.6%	157.3%	48
Ghana	Common law	84%	34.3%	126.9%	14
Kenya	Common law	65%	85.0%	79.8%	25
Lesotho	Common law	34%	27.7%	98.4%	29
Liberia	Common law	12%	8.1%	81.2%	5
Malawi	Common law	11%	9.5%	37.4%	37
Mauritius	Common law	100%	63.4%	139.9%	6
Namibia	Common law	56%	30.8%	105.1%	66
Nigeria	Common law	61%	50.2%	83.2%	19
Sierra Leone	Common law	9%	11.7%	78.2%	11
South Africa	Common law	86%	53.7%	159.2%	45
Tanzania	Common law	33%	38.9%	73.6%	28
Uganda	Common law	19%	42.9%	50.4%	24
Zambia	Common law	34%	41.2%	71.8%	9
Zimbabwe	Common law	34%	40.2%	80.9%	61
<b>9Means</b>	<b>Civil law</b>	<b>33.4%</b>	<b>21.8%</b>	<b>75.0%</b>	<b>17</b>
	<b>Common law</b>	<b>46.2%</b>	<b>38.5%</b>	<b>94.9%</b>	<b>28</b>

Table 2: FinTech Infrastructure (Yermack, 2018)

Not much is known of the optimal type of regulation that will promote FinTech business, and how this regulation will intermingle with the existing legal system. Sub-Saharan African has, to some extent adopted a hands-off regulatory posture toward FinTech. FinTech regulation generally affects three wide areas: Consumer protection, tax collection, and financial stability. Another area worthy of mention is compliance with anti-money laundering regulations which would pose a special challenge for developing nations as those in sub-Sharan Africa, where

remittances or crowdfunding donations are received from abroad through FinTech platforms. Countries with highly developed institutions are not spared the problems of regulating FinTech organizations because in many cases, the technology is built to bypass existing regulatory frameworks. Examples of such include public blockchains, which can exist basically in virtual space with no physical connection to the countries where the users reside, and no regulation seeking to collect taxes or impose sanctions can apply to them, except for voluntary compliance by the blockchain users.

In addition to the challenges mentioned above, four more motivations for FinTech regulation came up because of the impact and nature of technology as were mentioned by Didenko (2018) and agreed by Yermack (2018), noting that FinTech is commonly widespread in Africa due to extension of rudimentary financial services into several markets that banks saw as unprofitable to venture into, as well as the absence of any evident FinTech tragedy till date. They are:

- Increased access to financial services by inexperienced customers.
- Market incumbents faced by threats posed by new technology.
- Quick expansion of new platforms.
- Anonymization or disintermediation of services providers that previously offered market oversight.

### **2.11.1 Role of FinTech in Sub-Saharan Africa**

A larger part of the adult population in Sub-Saharan Africa, estimated to be about 340 million as stated by Moreno et al (2015), Demircuc-Kunt et al., (2018), and put at approximately 60% of the adult population by Boiko (2019) remains unbanked (Figure 2.11.5). The growth of banking sector in Africa is impeded by factors such as low supply of products for insurances, savings, payment, and credit transactions, as well as currency fluctuations (Encompass, 2017) and FinTech plays a distinct role in that region. Basically, FinTech solutions thrive in areas where the conventional banks have been unprofitable, and financial inclusion opportunities are non-existence, as stated by Yermack (2018) and agreed by Encompass (2017) and Didenko (2018). This gap shapes the basis for the constructive perception of FinTech, both amongst the



incumbent financial establishments and the general populace, which can collaborate with the evolving FinTech businesses to cover the markets in such regions. Additionally, the common perception that exists in the region is that banking is for the wealthy, and the basic banking procedures such as opening of account can be "painfully bureaucratic" (Encompass, 2017). But on the contrary, FinTech opens the opportunity of bridging the gap between the middle class and the poor.

FinTech organizations, amongst others, were listed at a recently concluded pan-African conference as the major future driver of financial inclusion in the Sub-Saharan region (BOWMANS, 2017), obvious reasons being factors such as the African demographic (where the young people make up a large proportion of the population). Other factors include the outcome of a recent study where 13 countries with the highest mobile money users, based on the proportion to population, were Sub-Saharan African countries. Consequently, the region was tagged world leaders in mobile money subscription ((Das Gupta and Kollodge, 2014).

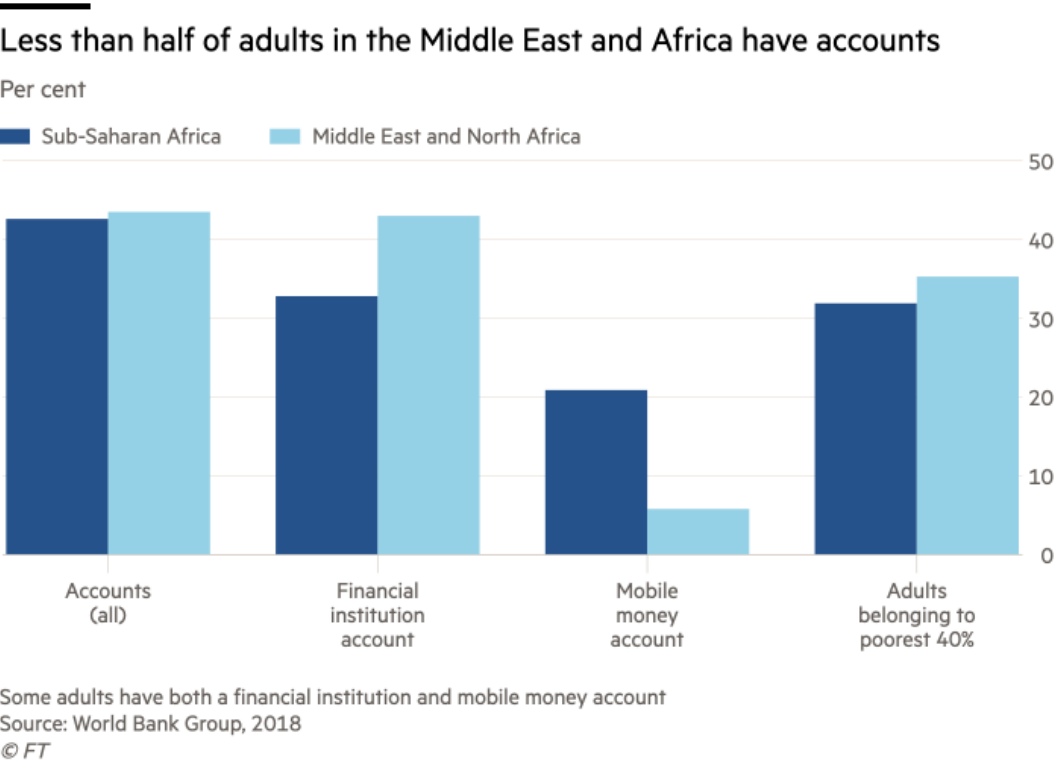


Figure 2.11.5: Underserved regions in Africa (Boiko, 2019).



### 2.11.2 FinTech opportunities and challenges in Africa

The catalyst? Rapid smartphone penetration across the world's low-income communities is enabling alternative ways to "know your customer"; cheaper methods of capturing alternative data; and a high-touch, low-cost distribution channel. Ultimately, what this technology promises are ways to bring the many "credit invisibles" onto the grid by resolving three key obstacles of lending to the unbanked and underbanked: delivery, risk, and design (Nze, 2017). A new book by McKinsey confirms that Africa is poised for economic acceleration, akin to the Asian boom. While other geographies are seeing incremental growth, global companies that get in early and join the African champions shaping the right strategies can sustain double-digit profit growth over the next few decades.

In 'Africa's Business Revolution: How to Succeed in the World's Next Big Growth Market', Leke, et al., (2018) detailed the research that McKinsey & Company has done and shared insights into Africa's future growth prospects. The conclusions they drew are distilled from 3,000 McKinsey client engagements, in-depth proprietary research, and interviews with 40 of Africa's most prominent business and development leaders. The authors revealed how companies can better understand the African market and seize opportunities for building profitable, sustainable businesses. Major trends indicate that Africa is poised for explosive growth. Africa has a fast-growing, rapidly urbanizing population with immense unmet needs. This means there is a trillion-dollar opportunity to industrialize Africa, to meet rising domestic demand, and create a bridgehead in global export markets. In addition, there has been a big push by governments and the private sector to close infrastructure gaps. There is a continued resource abundance in agriculture, mining, and oil and gas, with innovations and investments in these sectors unlocking new production on the continent. The rapid adoption of mobile and digital technologies could leapfrog Africa past many obstacles to growth.

Leke and Desvaux, both Senior McKinsey Partners and Chirona, an executive at Nedbank, one of South Africa's largest banking groups, said:

*"With over 400 African companies earning annual revenues of US\$1 billion or more, we can identify what works. The highly successful businesses are often African companies, but many are entrepreneurial firms with Western, Indian, or Chinese founders. The most consistently*

*profitable businesses demonstrate a higher tolerance for risk, are eager to adapt their products, production and distribution for African consumers, and commit to investing and building their businesses for the long-term."* (Leke et al., 2018 p.1)

The western part of sub-Saharan Africa is a good example of where opportunities and challenges collide. Challenges faced by this region are mostly health-, education- and nutrition-poverty-related: Poverty rate is more than thrice the global level (Demirguc-Kunt et al., 2015; Adegoke, 2020). Nonetheless, West Africa, which is home to Nigeria: the most populous economy, is the second fastest growing regional economy in Africa with an annual GDP growth of 6% in 2014 (Demirguc-Kunt et al., 2015). This, alongside other reasons such as gaps in Agricultural production and infrastructure development, is creating vast demands for investments and innovations (Akinkugbe, 2012).

In as much as the mentioned reasons have made the region an attractive target for investors looking to create sustainable environmental and social impact alongside financial returns, it is still difficult for investors to deploy capital to the region because of structural factors such as infrastructure and energy, political uncertainty and regulatory barriers.

### **2.11.3 FinTech investment in Nigeria.**

There are presently between 210-250 FinTech companies, key stakeholders (telecom companies, banks, and the government), funding partners (research institutes, universities incubators, investors, and consumers) and enablers in the Nigerian FinTech landscape (CSL Brokers, 2020). The Central Bank Governor stated that over \$400 million was invested in FinTech companies in 2019 alone (Ojo, 2020), with new 90 active hubs (Shapshak, 2019),

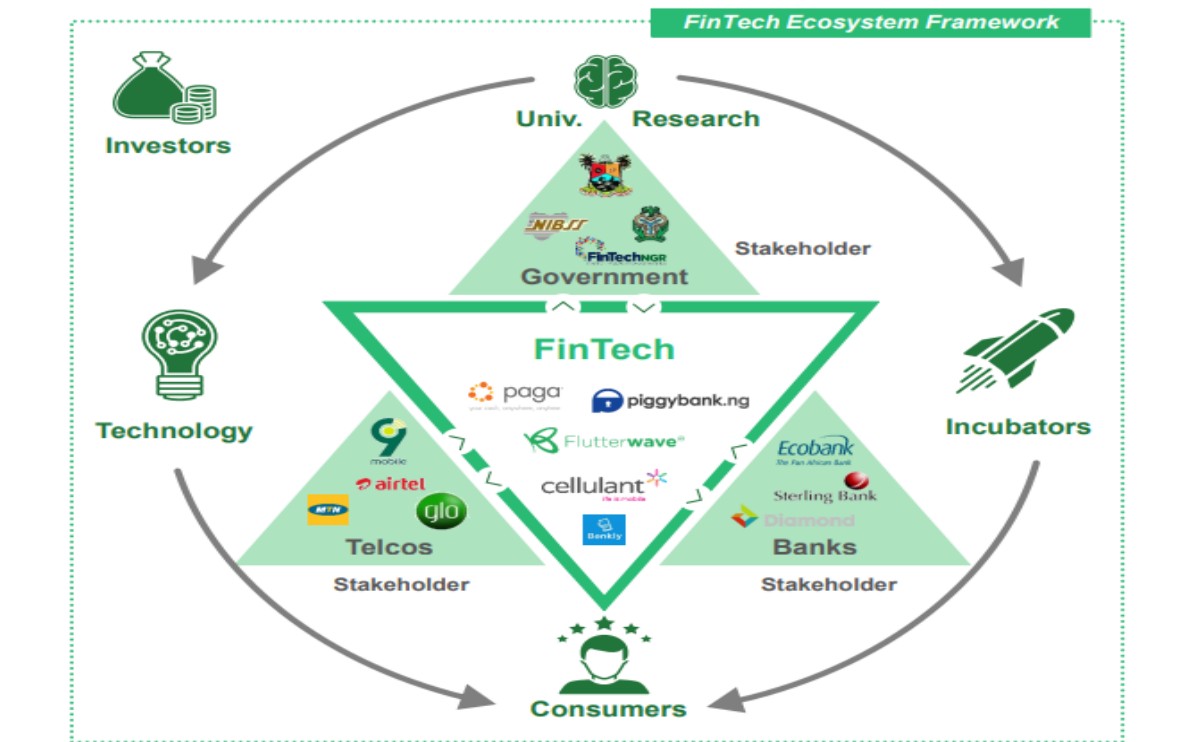


Figure 2.11.6: FinTech ecosystem framework (CSL Brokers, 2020).

While KPMG reported the emergence of over 12,000 start-ups and a global investment of \$19 billion in 2015, Disrupt Africa reported that \$14 billion was invested into FinTech global in 2015, with African start-ups getting up to 30% of the total venture capital investments, which is about \$50 million as against \$16 million in 2014, and the total investments in FinTech Africa increased from \$198million in 2014 to \$800million by the end of 2016. The ecosystem was raised by up to 60% in the past two years, with up to \$320 million raised since January 2015. \$132.8 million was raised in 2018 alone, being the best in Africa, with Nigeria leading with \$94.9 million (Shapshak, 2019).

On the other hand, Lim et al., (2016) reported the growth of FinTech global investment from \$4.5 billion in 2013 to \$22.3 billion in 2015, with the number of start-ups growing from 770 in 2013 to 1,100 in the same period (Adepetun, 2017). Accenture also reported that by the end of 2015, the investment had grown 75% to \$22 billion, with the growth attributed to the US FinTech sector. (Accenture, 2016).

Overall, the last three years have been developmental for the Nigerian FinTech space, with the emergence of several FinTech start-ups, investments, and incubators. Investments over the last two years surpassed the \$200 million mark, with the start-ups being responsible for 30% of the total funds raised by the African FinTech in 2015.

FinTech is speedily moving to represent technologies that disrupt traditional financial services, which includes money transfers, mobile payments, loans, asset management, and fundraising. Fintech's expansion includes any technological innovation and automation of the finance sector, not leaving out financial literacy, education, and advice, as well as wealth management, retail banking, lending, and borrowing, investment management, fundraising amongst others. This draws the question of collusion between FinTech and financial institutions in the future. Even though the general belief is negative, some activities of FinTech such as Blockchain rattles this proposition to its foundations. Examples of FinTech advanced developments include, but aren't limited to, reduced rates peer-peer loaning sites, stock trading apps, algorithm-based portfolio management, robo-advisor services, budgeting tools, and all-in-one online personal finance management. All the mentioned FinTech segments and products are categorized into four basic service contact points as it relates to its users.

- i. Business-to-business for banks
- ii. Business-to-business for banks' clients
- iii. Business-to-client for consumers
- iv. Business-to-client for small businesses.

The most developed sub-sector in Nigeria is the payment and remittances, with a surge of simplified apps emerging daily. Years ago, Interswitch, a start-up payment processing company initiated the infrastructure to digitize the cash economy (Green, 2020). This has been a breakthrough, especially when the traditional banks charge as high as 10% transaction fees. With the upsurge of mobile phone penetration and key developments in mobile money, the same service can be provided by FinTechs at a low cost of 2-3% per transaction (Maritz, 2017).

Nigerian FinTech has progressed into lending so much that it has become burdensome borrowing from the traditional financial institutions. The online lending platforms enable financial companies to utilize technology to accelerate loan decision processes as well as reducing the cost of borrowing and providing consumer-friendly solutions and fewer collateral hassles. Lending includes peer-to-business and peer-to-peer consumer lending. This process has helped consumers to leap across the regulatory barriers as well as avoid inflated interest rates. The targets for this service are retail sectors and the SMEs (Green, 2020). Fore runners in this segment include PayLater, 247 Cash.ng, KiaKia and QuickCheck amongst others (Alegeh, 2019).

Wealth management or personal finance is another hot segment in Nigeria. Several apps have been developed which enables consumers to reach their finance goals. PiggyVest, Kudimoney, Farmcowdy, and Cowrywise are a few of the players in the Nigerian market.

Insurance, or InsurTech, though slowly, is also taking its roots in Nigeria. With just 1% penetration, as compared to South Africa's 17%, it is considered that the traditional insurance outfits have not been successful in utilizing the opportunity to the benefit of the nation's economy, they have been unable to educate the populace on the importance of insurance. Reasons for the failure vary from lack of transparency to cultural and religious beliefs. Using data analytics technology, FinTech has been able to streamline the processes and improve its risk analysis, as well as tapping into the gaps that have been created by the legacy insurance companies.

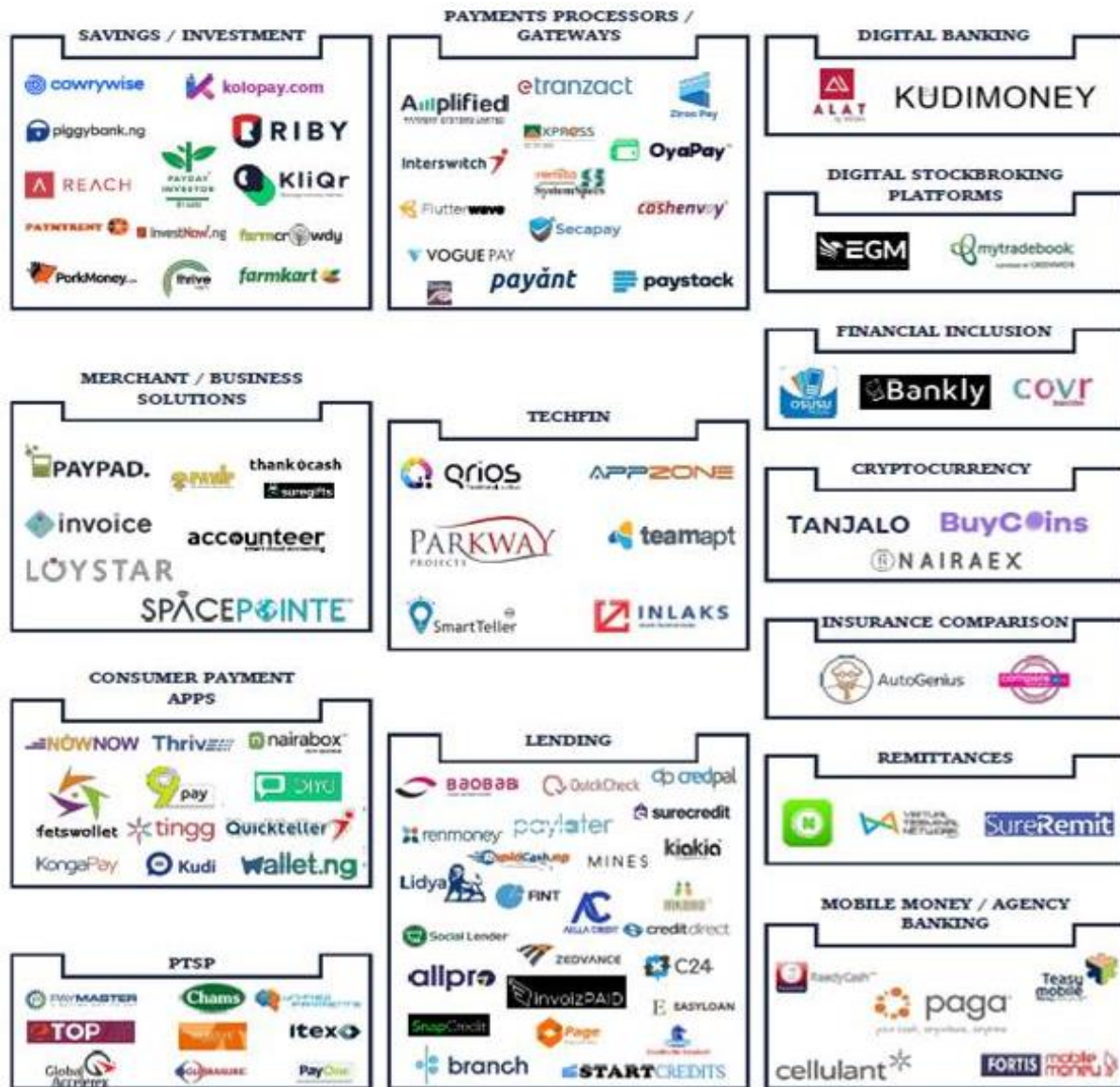


Figure 2.11.7: FinTech landscape in Nigeria (James-Yakub, 2019)

Venture capital funding for start-ups in Africa leaped by 51% from 2016 to \$195 million in 2017. By March 2018, there are 442 active accelerators, incubators, and FinTech co-working spaces in Africa, an increase from 314 spaces designed to support the start-ups in 2016. Nigeria, with a growth from 23 to 55, experienced the highest growth in the continent.

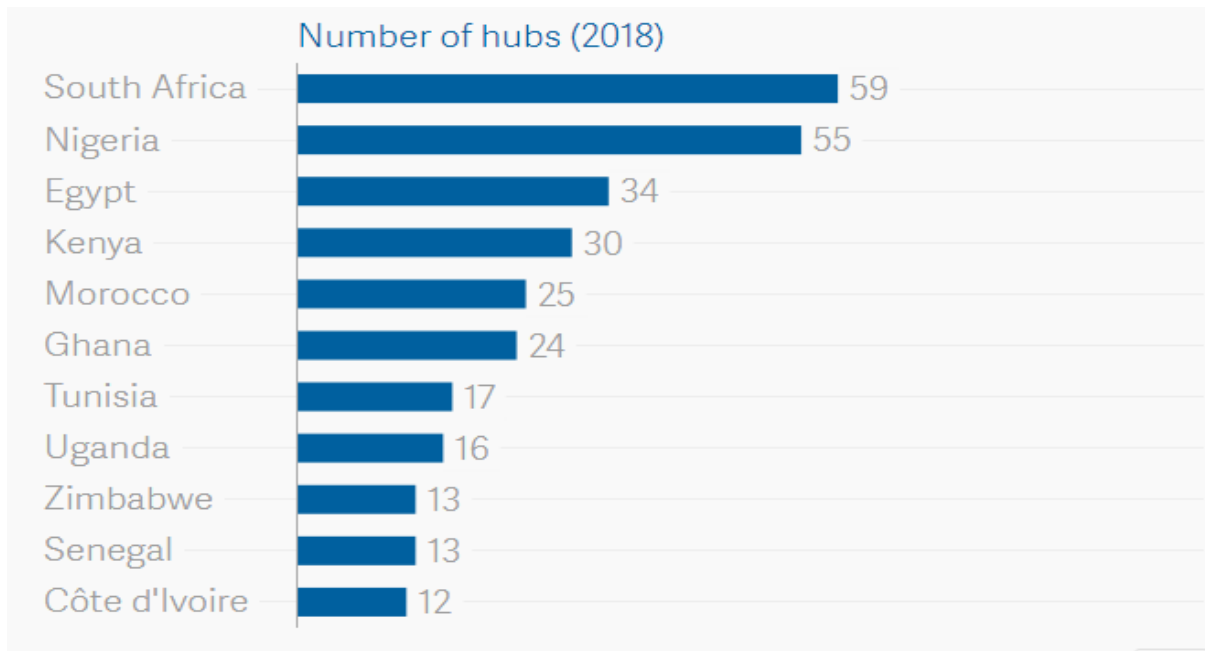


Figure 2.11.8: Number of hubs per country: (Dahir, 2018)

A recent annual funding report showed that venture capital funding had increased by 53% to reach \$560 million.

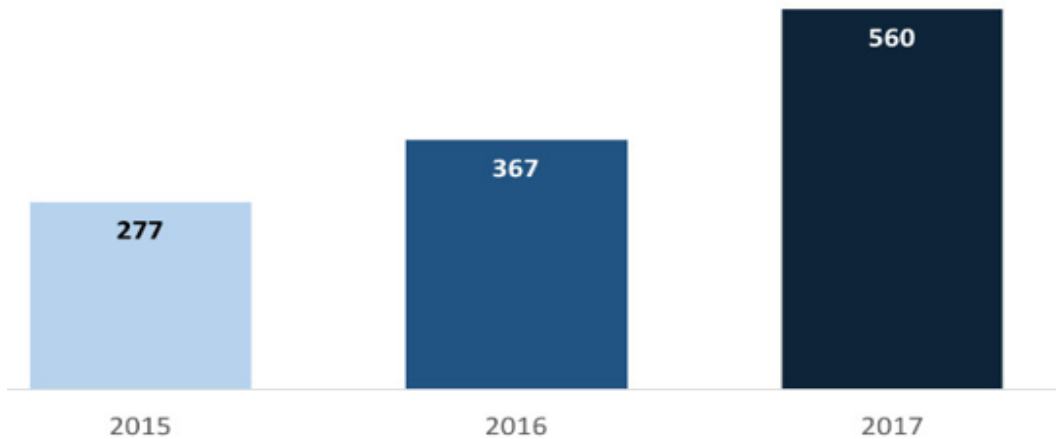


Figure 2.11.9: Venture Capital funding to African star-ups from 2015-2017 (Partech, 2018)

As indicated in the Figure below, the scale of increase in funding is indicated by the number of investments rounds that start-up participated in. The total number of rounds increased from 77 in 2016 to 128 in 2017, of which 124 were start-ups (Collon, 2018). Forbes reported a record high \$1.34 billion venture capital fund for African start-ups in 2019, with FinTech seeing over \$678 million (Shapshak, 2020).

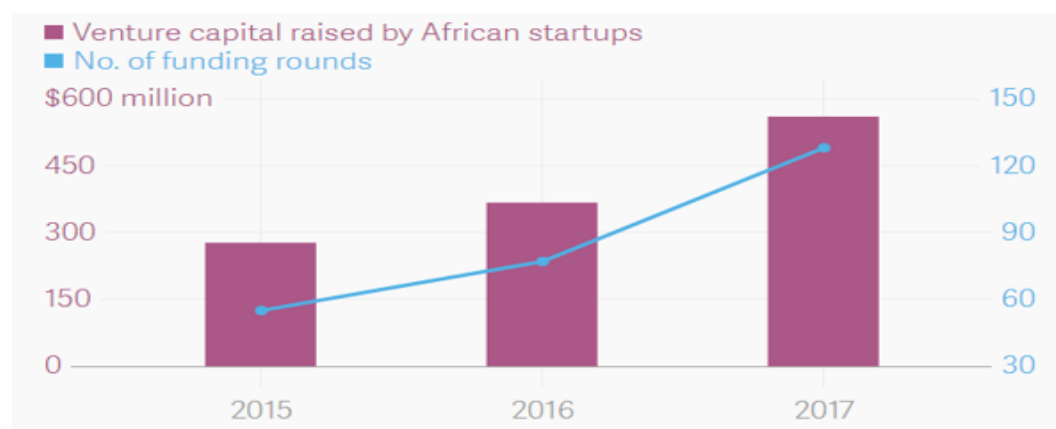


Figure 2.11.10: Start up investment in Africa (Kazeem, 2018)

#### 2.11.4 Opportunities for Growth in Nigerian FinTech

There are numerous reasons why Nigerian FinTech has a very good chance of growth and sustainability.

**Innovative culture:** Across Nigeria, several FinTech start-ups are sprouting and grabbing the opportunity to make easier, seemingly complicated financial activities such as investing or paying through intuitively designed interfaces and products. Mobile payment acceptance rate in Nigeria has been promising, with a good percentage of consumers as well as merchants adopting e-payments. Consequently, traditional banks are also pushing up their digital financial services offerings, in areas such as lending and payments. This is the right time for FinTech companies to join as part of Nigeria's cashless push with potentially disruptive technologies.



**Market opportunity:** Not only does FinTech saves time and costs for performing activities that require the exchange of money but has also offered businesses in Nigeria the opportunity to establish market spaces for themselves and open new markets.

**The age of the consumer:** This is also a major factor in the sustainability of FinTech. For easier studies, Pew Research Centre has defined the millennials as those born between 1981 and 1996 (24-39 years in 2020), and the generation Z as those born from 1997 (from 23 years down in 2020) (Dimock, 2019).

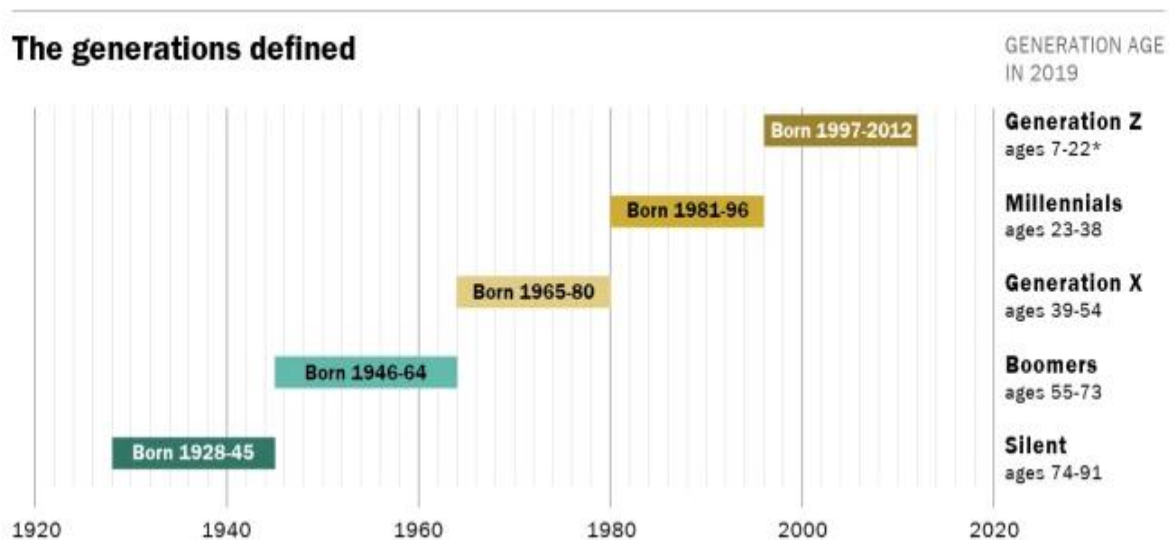


Figure 2.11.11: Generation age (Dimock, 2019)

**Technology is generation-shaping consideration for specific age groups.** Baby boomers as seen in the Figure above grew at the same time when television expanded considerably, changing their connections and lifestyles in major ways. Generation X grew during the time of the computer revolution while the millennials came at the time of internet eruption. In this progressive manner, generation Z is unique as all these were part of their lives from the beginning; mobile devices, Wi-Fi, high-bandwidth cellular services, social media, constant connectivity, on-demand entertainment, financial services, and communication innovations.

What this implies is that there has been a dramatic shift in youths' attitudes, lifestyles, and behaviours. The earlier report by Vision Critical above had pointed out how the millennials are strongly drawn to FinTech as compared to traditional banking and this report has clearly shown that those in 'generation Z' are even better at handling technology (Financial services inclusive) than the millennials. Nigerian population distribution, in chapter 2, showed that over 75% of Nigeria's about 200 million people are below 45 years of age. This goes to show clearly why embracing recent financial technological innovations is expected to grow exponentially in Nigeria.

**Smartphone users:** Smartphone users in Nigeria have been forecasted to reach 140 million (60%) by 2025. There are about 170 million mobile subscriptions in Nigeria, and present estimates put the smartphone users' population at 10 to 20 percent of the population (25 to 40 million). Most mobile users still use feature phones that offer mainly basic functions such as voice calls and text messaging. With the real figure difficult to pin down, data available shows a solid increase outlook for the Nigerian market with users expected to triple within the next five years (Agbugah, 2016; O'Dea, 2020). The graph below is a representation of estimates from different data banks.

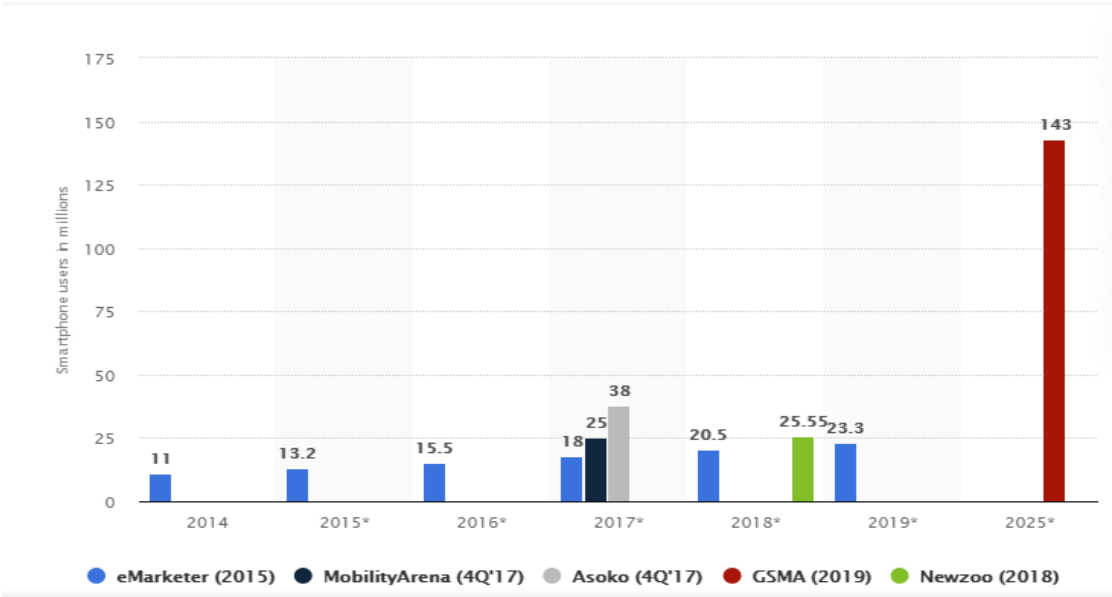


Figure2.11.12: Smartphone users in Nigeria (O'Dea, 2020).

**Automation response and Internet penetration:** The predominantly cash-driven economy has so far responded well to financial services opportunities. The Figure above shows the statistics of internet users taken in Nigeria from 2017 to 2018, with projected figures for 2019 to 2023. The Figure was projected to reach 113.3 million by the end of 2019. In a similar and updated report, the number of internet users as of May 2019 was 115 million (Sahara Reporters, 2019) and stood just above 126 million as of January 2020: about 61% of the country's population (IWS, 2020).

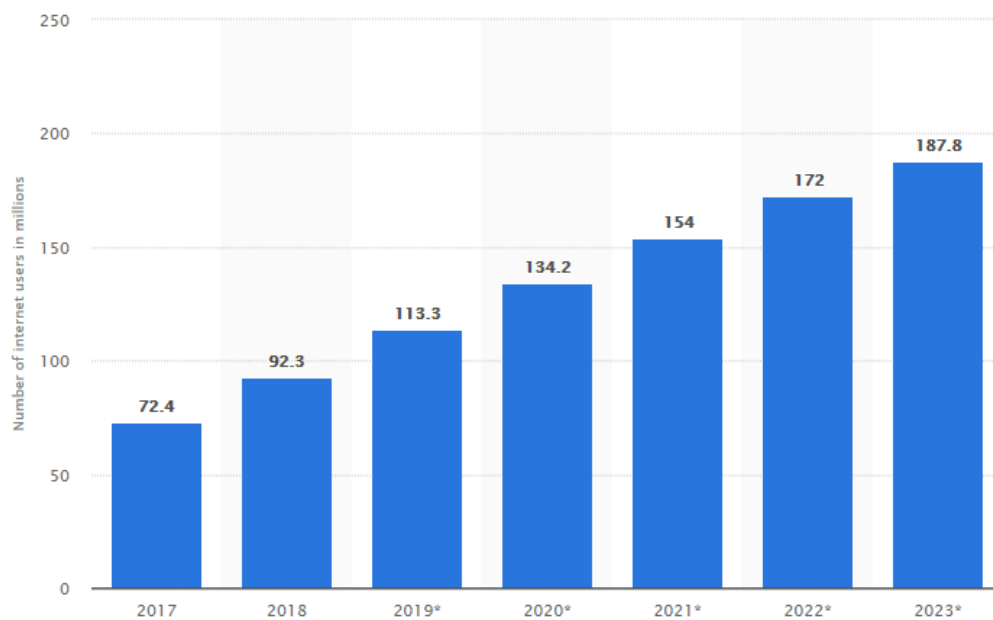


Figure 2.11.13: Internet users' projection in Nigeria (Clement, 2019)

**Mobile shopping rate:** PayPal Holding Inc., an online payment giant has become the most popular cross-border medium for inter-global transactions in Nigeria, ranking the country as the third-highest mobile shopper worldwide, after China and India. In 2015, Nigerian mobile shoppers were reported to have spent N128.1 billion (\$610 million) using PayPal, and N172,000 billion (\$819 million) in 2016. This trend is expected to boost entrepreneurship and global business reach (Olukoya, 2016)

**Cash Remittance:** Global Findex reported that 80% of Nigerians paid their utility bills by cash, 15% made their payments directly from their financial institution's account, while 1% used both financial institution account and mobile phones for utility payments (Medici, 2017)

**Diaspora cash remittances:** Annual diaspora remittance was estimated to be \$21 billion in 2015 and as such, given the benefits of digital currency, Nigeria is likely to be fertile ground. An example is the Bitcoin, where remittance charges 3% as compared to 7 to 10% charged by the traditional financial institutions. London School of Economics came up with The Bitcoin Market Potential Index (BMPI) where Nigeria ranked 7th out of 178 countries that are likely to adopt Bitcoin.

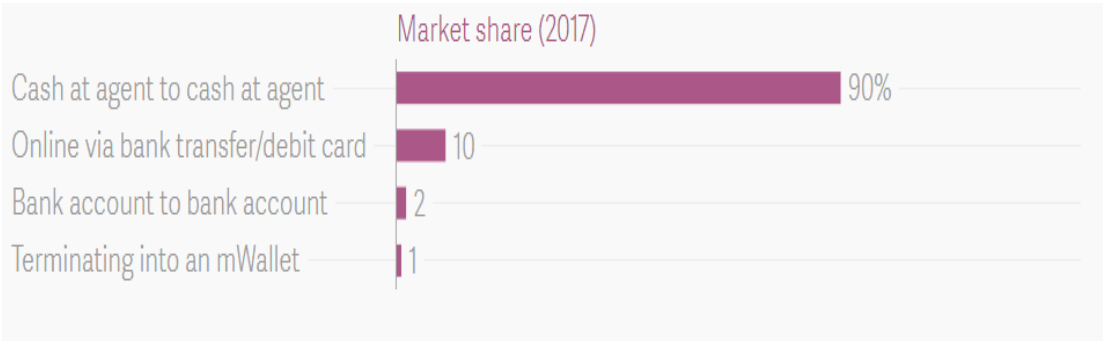


Figure 2.11.14: United Kingdom -Africa remittances (Dahir, 2017)

Some other facts that make Nigeria a prospective and attractive FinTech ground include:

- The FinTech payment space in Nigeria is one of the key sources of revenue for the banks and other service providers. FinTech services across Africa are gradually building the needed infrastructure that allows for easy access to services and at a lower cost such as mobile phones (Dahir, 2017)

There has also been an initiative launched by the Nigerian federal government to reform the payment sector, called the Payment Systems Vision (PSV), giving priority to cashless policy and innovating different payment systems as propelled by rising adoption of

smartphones, increased internet usage, change in consumer behaviour pattern, and deployment of ATMs.

- A robust talent conduit of low-cost and easy-to-hire labour force.
- Nigeria's FinTech industry is expected to evolve further as over 50% of the country's population is below 25% of age (The World Factbook, 2019).
- 30% have been reportedly denied access to credit from the traditional financial institutions, over 60% traders require less than N30,000 (£60) to start any petty trading and 56% of the traders' source funding from unions, families, and friends.

## **2.12 Nigeria and Cryptocurrency**

One place where cryptocurrencies pull significant attention, more than anywhere else, is Nigeria. Driven by its expanding manufacturing, oil exports, financial services, communication and information technology; Nigeria is also a tech-savvy generation that asks google about Bitcoin more than other peer countries. Even with this advancement, cash persists as the only choice for many Nigerians to pay for cryptocurrency (Tassev, 2020). According to recent statistics, Nigeria accounts for almost a quarter of all internet users in Africa, with over 123 million people having access to the web (IWS, 2020). With such statistics, it would be assumed that the internet will be the most common way of purchasing cryptocurrencies but that is not the case (Figure 2.12.1) Having internet access does not mean owning a bank account. Over half of the country's 200 million population remain unbanked. The data released by World Bank revealed that only 40% of Nigerian adults have accounts with banks or mobile money providers. The 2018 Global Findex report stated that one out of ten unbanked Nigerians receives wages in cash, and this comprises the four million who own a mobile phone. Another group is the fifteen million unbanked farmers that sell agricultural products for cash, of which about 10 million are mobile phone owners (Tassev, 2020).

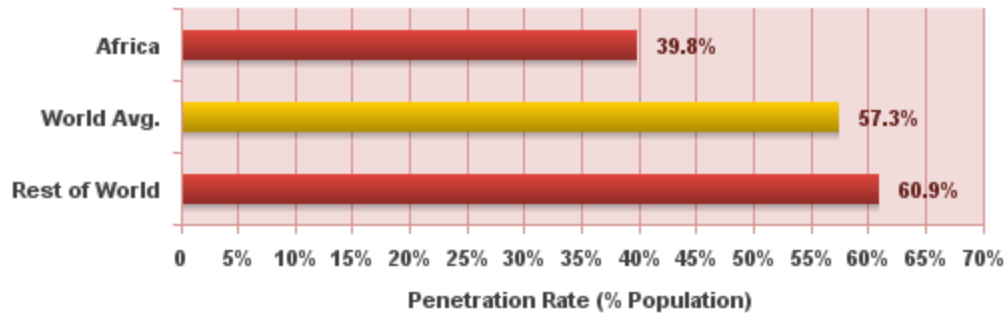


Figure 2.12.1: Internet penetration in Africa web (IWS, 2020).

With the soaring use as a medium in Nigeria as well as globally, cryptocurrencies can arguably be referred to as currencies. And so, it is worth examining the Nigerian currency laws with a stance to getting an insight into the position of cryptocurrency in Nigeria. In response to internet demands, new chances have emerged for cash purchases of bitcoins in Nigeria. Yellow Card is a platform that has Nigerians covered, offering the use of online purchases through ATM or bank transfer, as well as cash through platform agents (Tassev, 2020).

Another milestone achieved by the promoters of Cryptocurrency in Nigeria is the introduction of Bitcoins Automated Teller Machines (BATM) by a company called Blockstale. Manufactured in China with an African-focused design, it takes into account the security of the region, one device has so far been deployed. Binance, a major cryptocurrency has added its support for Nigeria by including the Nigerian currency, Naira, on to its peer-peer platform. This is to allow Binance P2P users to trade major cryptocurrencies such as Bitcoin using NGN, and with a zero-transaction fee (Partz, 2020).

### 2.12.1 Legal Concept of Currency

Amid this matter, the question arising is whether cryptocurrencies satisfy the characteristics or requirements of currency or money and whether it can or should be classed as commodity or currency. The responses to these have legal implications. For example, to classify cryptocurrency as currency puts it within the purview of currency laws and qualify it as asset for capital gains tax functions; while classing it as commodity will likely exclude it from the currency laws and

also bring it within the realm of goods under consumption tax -Venture Capital (Incentives Act, 2012). As it is with most models, currency does not have a generally accepted description, nonetheless, certain characteristics are vital. Currency is expected to be a legal tender, have intrinsic value, a ground claim against issuer, a unit of account, a medium of exchange and a store value (He et al., 2016). For all the above mentioned, except for the fact it now has a store value, and it is now soaring as a medium of exchange in online retail, cryptocurrency has a "no" to the other descriptions (Lockett, 2018; Nikolaev, 2019). It is also decentralized, and its supply source is private in which the supply rule can abruptly alter with the theoretical agreement of bulk miners.

Importantly IMF has noted that:

*"The legal concept of currency is associated with the power of the sovereign to establish a legal framework providing for central issuance of banknotes and coins. Currency refers to the unit of account and the medium of exchange denominated by reference to that unit of account, prescribed by law. In the strict sense, currency refers to the banknotes and coins that are issued by a central authority (for example, the central bank) that has the exclusive right to do so. Currencies are given the status of legal tender under the state's legal framework, which generally entitles the debtor to discharge monetary obligations with the currency through its mandatory acceptance within the relevant jurisdiction. As such, the value and credibility of a sovereign currency are intrinsically linked with the ability of the state to support that currency. The legal concept of money is also based on the power of the state to regulate the monetary system. As a legal matter, the concept of money is broader than the concept of currency and includes not only banknotes and coins but also certain types of assets or instruments that are readily convertible into such banknotes and coins (for example, demand deposits). While money can be created by private parties (for example, banks) as well as central banks, it must generally be denominated in a currency issued by a sovereign authority, and must be intended to serve as a generally accepted medium of exchange within that state"* (He et al., 2016 p.16)

### **2.12.2 Nigerian Currency Law**

The Central Bank of Nigeria Act 2007 (the "CBN Act") gives CBN the power to issue legal tender in Nigeria (Central Bank of Nigeria Act, 2007). The Act further stipulates that the accepted Nigerian unit of currency is Naira which shall be divided into a hundred kobo. The CBN shall also have the single right of supplying and issuing currency coins and notes throughout the country and neither the States nor Federal Government, nor person nor authority shall issue currency notes, coins or banknotes, tokens or documents that are payable to "bearer" on-demand, being token or document that will most likely pass as a tender.

The exchange rate of the naira to other fiat currencies around the world shall also be determined by the CBN and organize for printing and minting of notes and coins respectively which shall be legal tender in the country at their face value for the payment of any amount.

In addition to the CBN Act, the Decimal Currency Act and other currency laws in Nigeria apply basically to Nigerian currency and that said, a claim can be made by the Foreign Exchange Act ("Forex Act"), which defines currency as "any currency other than Nigerian currency" and applying to cryptocurrencies (Foreign Exchange (Monitoring and Miscellaneous Provisions) Act Chapter F34 (Decree No 17 of 1995).

However, specific legislation on cryptocurrency is required to efficiently regulate them as a developing and almost inevitable currencies for global financial transactions. This is because a review of the Forex Act would at once show that the currencies referred to in the Act are the foreign fiat currencies as the laws were passed when cryptocurrencies were virtually non-existent and only began existing as decentralized money systems in 2009. Though not foreseen under the current currency law, it is debatable that they are not valid currencies or legal tender in Nigeria, as it was not issued by any central authority or government of any country.

### **2.12.3 Nigerian Regulatory Authorities' Response**

The start of cryptocurrency in Nigeria came just after the close of the popular Ponzi scheme Mavrodi Mudial Moneybox ("MMM") in 2016. From then on, the platform announced adopting



Bitcoin which was taken with so much scepticism by Nigerians. With the increasing popularity of cryptocurrency through the MMM platform, the Nigerian Deposit Insurance Corporation (NDIC) and CBN, after looking into the scheme, advised Nigerians through the Security Exchange Commission (SEC) which is also a regulator in the Nigerian capital market, about investing into cryptocurrency as none of the companies or persons has been authorized or recognized by either it or any other regulatory body in Nigeria as an investment provider, deposit receiver or any other financial services, in or outside of Nigeria the regulatory body further warned that no regulation or guideline has been established for cryptocurrencies in Nigeria and as such, no protection is available to investors or users for the virtual currencies if the promoting companies run out of business or the virtual currencies fail. In the same vein, the CBN issued a circular to banks advising caution in the adoption or use of virtual currencies while stating that the virtual currencies are not a legal tender in Nigeria (SEC, 2017).

#### **2.12.4 Cryptocurrencies Jurisdictions**

Despite the rising escalation of cryptocurrency, its legal status as well as its reception varies widely across jurisdictions. While some countries have restricted them or outrightly banned them, some have given permission for their trade and use (in several cases with caution) and others are yet to define their stance against them. Amongst these countries that have taken a stand on them, there are still variations in the type and level of permission. PwC pointed out that there are inconsistencies in the classification, legality, and treatment of this technology (PwC, 2015). Though not considered a legal tender, 128 out of 257 countries/regions of the globe have legalized, and in some countries regulated, the use of cryptocurrencies. The Figure below is a representation of the world Figures (Appendix 4).

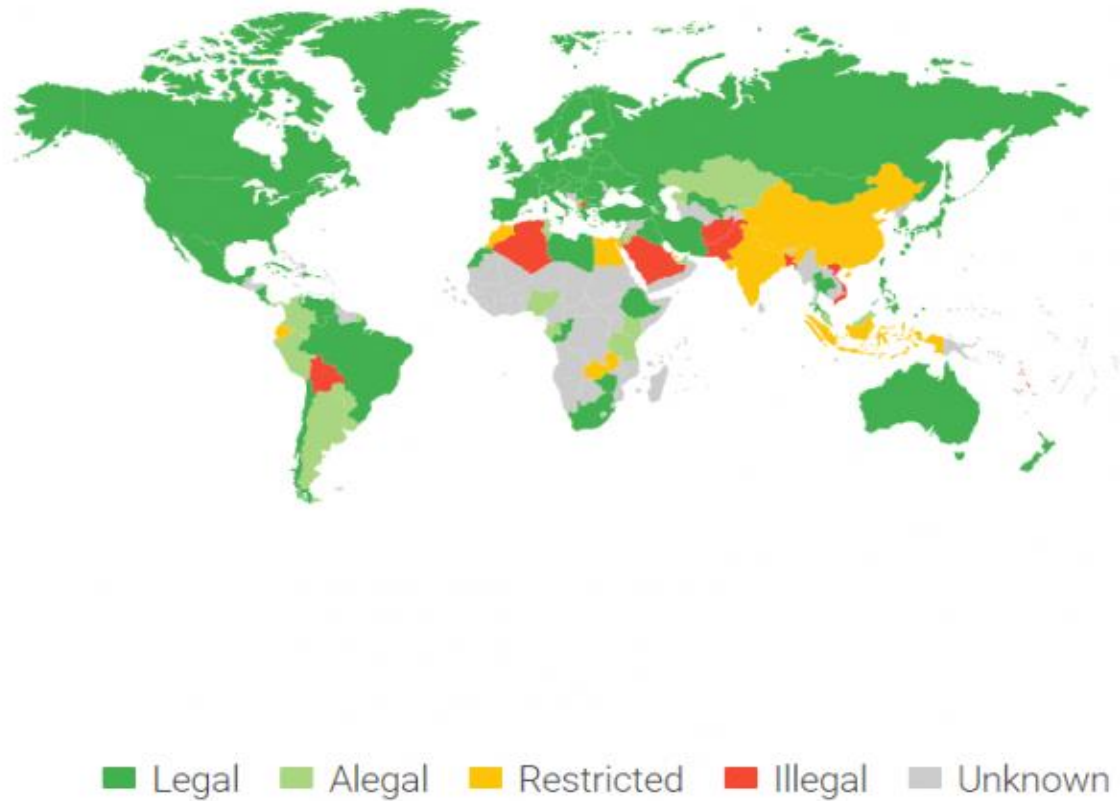


Figure 2.12.2: Global Bitcoin legality (Coin Dance, 2020)

### 2.13 Financial Inclusion

The term 'Financial Inclusion' has recently become very popular. As it is with any buzzword, it has been used and misused by several organizations to give a boost to their corporate image and to obtain support from their governments. Due to its popularity, the buzzword has become overloaded much so that it currently includes a wide range of initiatives comprising of both financial and non-financial services and products targeted at reducing financial exclusion. Although there may be no direct way to define financial inclusion, there are numerous clear features of the phenomenon from past works of literature which include equal availability of good quality financial services, frequent usage, and potential for increased welfare. Financial inclusion may simply mean the number of firms or individuals that make use of financial services. Financial inclusion means the degree to which an individual, either natural or legal, is

involved with the formal system of banking and is also within reach of continuous banking services (Patwardhan, 2018; Lochy, 2020).

On the other hand, financial exclusion can have different definitions and extremity to different countries, depending on their levels of development:

1. In developing countries, financial exclusion means the ‘unbanked’, which means people that have no access to bank or more precisely, people without bank accounts. The accounts are basically used for saving money, receiving and sending payments. This is highly attributed to general distrust (banking system is not deemed safe and sustainable), lack of knowledge (banking services are not simple enough) in the financial system, distance of banks locations (inconvenience) or high cost of charges (bad pricing).
2. In developed countries, although the unbanked still exist in the richest countries, it is the case of being ‘underbanked’ which comprises of:
  - Financial services and products are charged at such high rates that they become unaffordable or offer unsatisfactory value-for-money.
  - Required financial services and products not approved for people because of risk management measures taken by the financial institutions.
  - Inadequate and complex products are sold to customers who are unaware of better choices through biased financial advices or misleading practices.
  - Lack of better education to make people understand these services and products and as such make them inaccessible.

Generally, Financial Inclusion seeks to ensure that the basic everyday financial services that are offered by responsible institutions are accessible to everyone at a reasonable cost, at the same; time being properly regulated and sustainable.

### **2.13.1 Nigerian Financial Inclusion**

The Nigerian National Financial Inclusion Strategy (FIS) explained the attainment of Financial Inclusion as: "When adult Nigerians have easy access to a broad range of formal financial

services that meet their needs at an affordable cost" (Awosanya, 2018). The key point of the definition above is the 'broad range of formal financial services' which includes, but is not limited to, savings, payments, pension products, loans, and insurance services. Contrary to their definition, the CBN has thrown more attention on the bank-led model to enhance financial inclusion. Sola Fanawopo, a Nigerian FinTech expert has argued that unless other sectors of financial inclusion are given more notice, the bank-led model does not have the capability of improving financial inclusion in Nigeria (Awosanya, 2018).

Several countries have adopted different means of financial inclusion strategies, which is commonly led by the Central Bank. Nigeria came up with a strategy in 2012 with the intent of increasing the country's financial inclusion from 54% to 80% by 2020. The idea was to identify stakeholders, outline their responsibilities and roles, report the status of Nigerian financial inclusion as it relates to international benchmarks, discuss challenges faced in the process, introduce and present a range of targets and strategies for achieving the set target, discuss the regulations and Nigerian policy and its implication, introduce an organizational framework for adopting the strategy and begin frequent monitoring and evaluation of the strategy.

This strategy directly sets a target for savings, payment, credit, pensions, insurance, and so on. The initiative in this action includes a tactical approach to creating awareness about cashless payments, mobile banking, consumer protection, financial literacy framework, and implementing credit enhancement programmes and schemes.

Insurance service penetration in Nigeria is less than 1%. This penetration rate is driven by organizations and the common mandatory third-party vehicle insurance cover. At the end of Q4 2016, Only about 7.3 million Nigerians out of the total 69.5 million working population had retirement savings account. Aligning the above with the FIS idea, we can rightly say financial inclusion goes beyond merely opening of accounts, but the extension of financial services to the bottom of the pyramid-serving people who otherwise might not have access. A farmer, for instance, should be able to gain easy access to farming insurance that will shield him/her against loss of any kind. Similarly, a subscriber of telecommunications should also be capable of accessing insurance services on their mobile devices through their insurance providers or telecom services. A customer of the bank could get a one-month insurance cover for maintaining

a certain minimum balance in their savings account at the end of the month. Such policies will likely ensure that users get added value for their patronage and these moves would further drive the penetration of insurance, encourage banking, and reduce the amount of cash in circulation in the country. Other incentives could include discounts on using mobile wallets. Merchants could be asked to transaction charges for other forms of payment aside from cash.

The government could also give free insurance cover to people that pay their monthly tax which will not only raise revenue but also better the livelihood of the taxpayers. Recently, some selected partner companies on the Shared Agent Network Expansion Program (SANEP) were each given a N500 million (£1.1 million) loan to establish the agent network throughout the country. Then again, some commercial banks in Nigeria are closing branches of their banks because of armed robbery. The establishment of agent networks is the best replacement for these branches. In as much as the SANEP initiative is welcomed as it would mean less dependence on physical banks, FinTech experts have argued that these agents alone cannot aid in the attainment of financial inclusion (Awosanya, 2018; Mader, 2018).

### **2.13.2 Measurement and Impact of Financial Inclusion.**

Two separate studies measured the extent and impact of financial inclusion while considering some varying factors. Figure 2.13.1 shows the results of these studies, with samples representing three broad groups conducted with 43 countries: countries with high, medium, and low financial inclusion, with Nigeria falling under the medium class with around 45% inclusion. This study considered four dimensions of an ecosystem: economical, socio-demographic, political and technological (Kabakova and Plaksenkov, 2018)

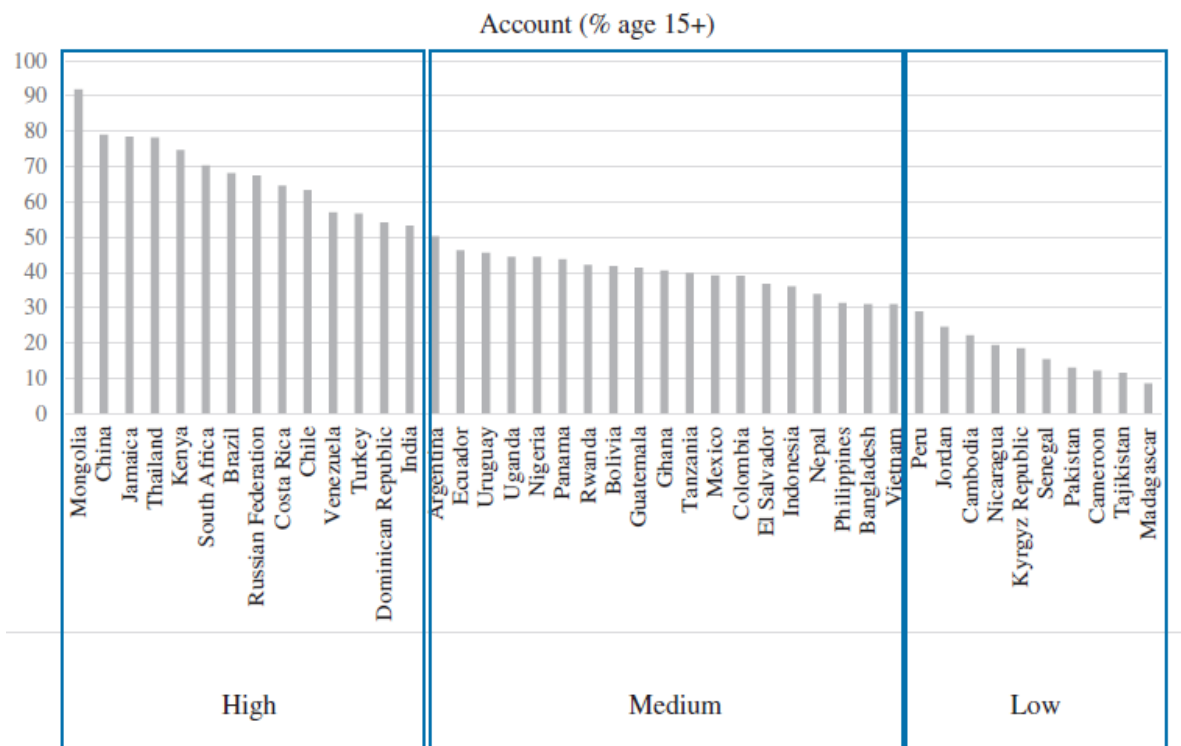


Figure 2.13.1: Country data on financial inclusion (Kabakova and Plaksenkov, 2018)

There is a wide variation in groups or population segments of people that are financially included. Poor, young, unemployed, less educated people, or those who live in rural areas are less likely to own an account. While Figure 2.13.2(a) is based on regression of a financial inclusion indicator for 124,334 adults that of 15 years and older, covered by the Global Findex in 2011 (Demirguc-kunt et al., 2014), Figure 2.13.2(b) shows the bankable adult population in Nigeria in 2018 (PwC, 2020). Account ownership disparities also go along with the country's income distribution: the more even the income distribution, the higher the country's account penetration.

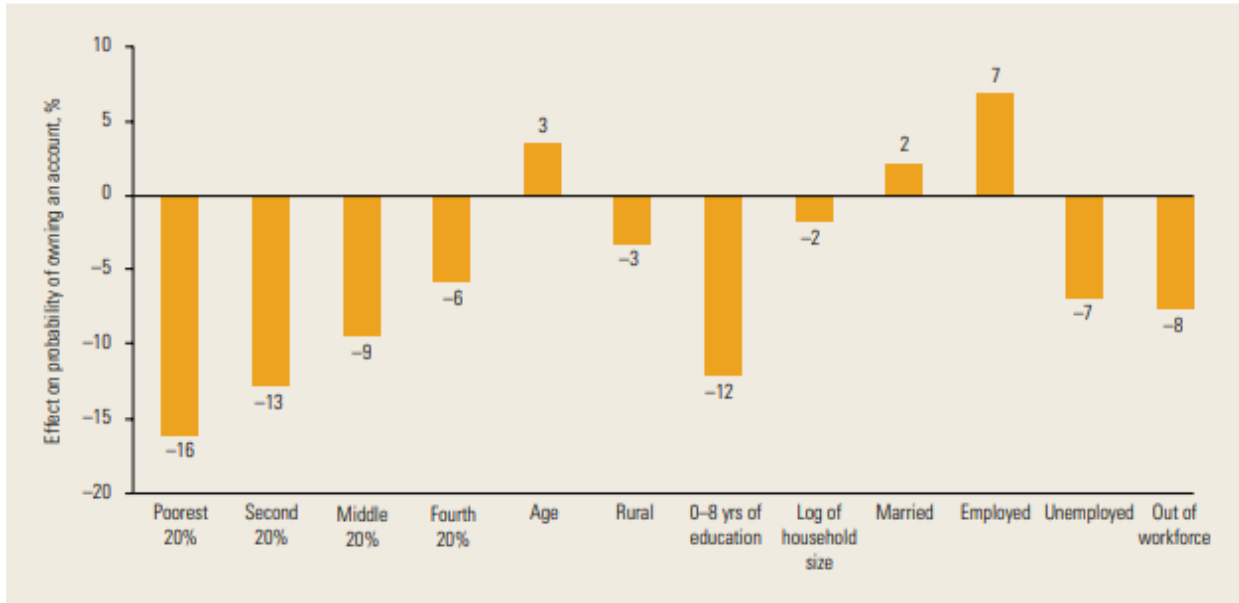


Figure 2.13.2a: Account ownership ratio (Demirguc-kunt et al., 2014).

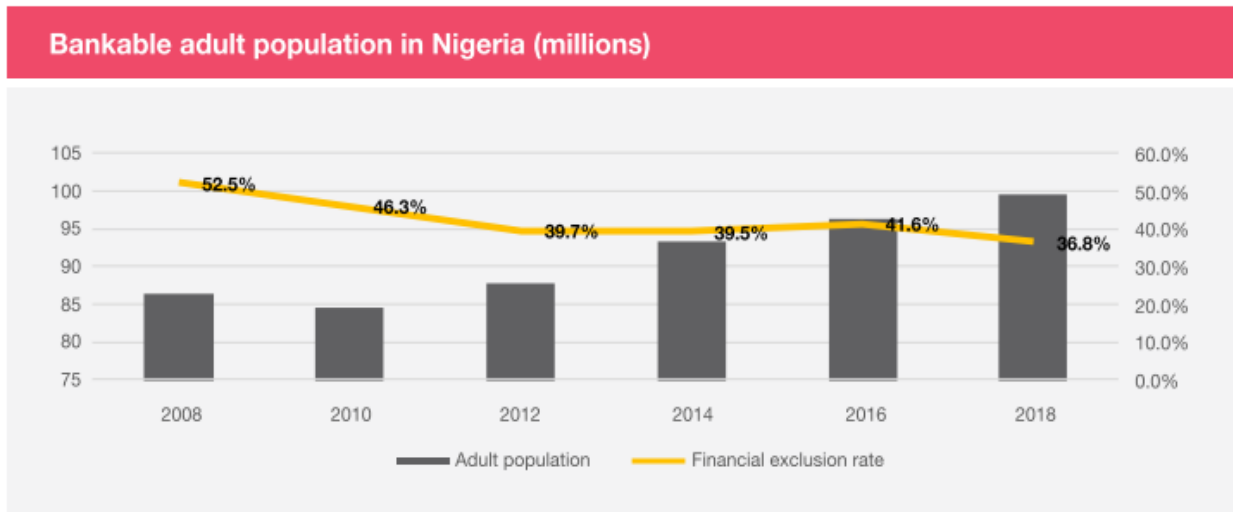


Figure 2.13.2(b): Bankable adults in Nigeria (PwC, 2020)

Other variables include an organization's size and age. Those that fall in this group face greater constraints, which affects their growth as well. Enabling environment such as proximity to financial providers, lower banking cost, and fewer documentation requirements for account opening also play a great role.

### **2.13.3 The Financially Excluded**

Several individuals are financially excluded or unable to own an account due to varied reasons. The homeless or undocumented individuals are unable to own an account due to a lack of a permanent address. Other reasons for financial exclusion include failure to comply with financial regulations such as counterterrorism and anti-laundering law, this reason has kept many financial transactions out of the formal banking services, forcing them to use alternative forms of transacting and saving. Due to client risks, in the legal aspect, there are types of businesses that are financially excluded in some countries of the world, they include operators of licensed digital currency exchanges, some equity crowd-funding platforms as well as other emerging FinTech companies. In some countries, the poor are being denied such services, as well as children and the vulnerable (Digital Finance Institute, 2020).

The challenges faced by Africa in terms of the financial technology space differs from that of the western world. Nearly 80% of adults in Africa lack access to any formal banking service, and a majority are still unbanked, cash transaction takes the first place when it comes to transaction, regardless of the amount involved. African FinTech services' major role is targeted at creating sustainable economic growth, unlike their western counterparts that already have an established playing ground. Not only is 80% of the continent's population unbanked, but 90% of retail payments are also made using cash and this has opened a door of opportunities for FinTech companies. The shortage of banking and electronic transaction infrastructure has opened the door for FinTech businesses to provide the appropriate services to the millions of consumers that have never had any access to the bank or financial institutions (Fintech Futures, 2017).

The emergence of FinTech has broken down the traditional fences for consumers living in remote areas. The lack of development and high use of cash for transactions have made it quite expensive for start-ups to operate. Still, FinTech strives to facilitate economic growth in several African countries. In as much as there are a lot of advantages for FinTech entrepreneurs, what the market needs is for these entrepreneurs to succeed. Sub-Saharan Africa has below 35% bank penetration (Demiguc-kunt et al, 2015) and according to a report by World Bank (2017), 80% of Africa's population lack access to formal banking services. Demirguc-Kunt et al., (2018) in their report 'The Global Findex Database 2017' stated that about 230 million unbanked adults in the



private sector jobs get paid in cash, 235 million farmers receive agricultural payments in cash, 1 out of 10 adults use semiformal methods for savings; and 260 million adults use cash or over the counter for remittances as seen in the Figures below. In all the Figures below, Nigeria can be seen to have a high representation.



Figure 2.13.3: Unbanked adults in private sector (Demirguc-Kunt et al., 2018)



Figure 2.13.4: Unbanked farmers (Demirguc-Kunt et al., 2018)



Figure 2.13.5: Unbanked adults that use OTC or cash for remittances (Demirguc-Kunt et al., 2018).



Figure 2.13.6: 1 of 10 unbanked adults using semiformal savings methods (Demirguc-Kunt et al., 2018).

In contrast, even with 389 million people living on less than \$1.90 a day (The World Bank, 2018). Africa has the highest penetration rate of mobile usage (EMCompass, 2017), hence the fertile ground for FinTech emergence. Despite barricades such as poor infrastructure and limited internet penetration, FinTech services took off in the wake of the 2008 world global crisis (Collett, 2016). The FinTech industry in Africa has attracted ample attention from venture capitalists with \$414 million funding in 2014 and rising to \$608 million in 2018 as reported by financial times (EMCompass, 2017).

#### **2.13.4 Financial Inclusion Strategies**

This has become a subject of interest among policyholders such that at the country level, over 60% of supervisory and regulatory agencies are charged with enhancing the cause. These strategies aim is to grow access to finance. Consequently, Financial Inclusion is a global priority on every agenda as it has been deemed a strong enabler for the 'Sustainable Development Goals' of the United Nations. Although the goals do not explicitly identify 'Financial Inclusion' as a goal, it is present as a 'strong enabler' in 8 out of the 17 goals (Klapper, EL-Zoghbi and Hess, 2016; UNCDF, 2020). A well-operational financial system widens opportunity and disputes impoverishment and lets people develop on their professional activities in much simpler ways such as time-saving and safer money transactions. This reduces or eliminates commute time to banks through mobile or internet transactions and physical exchange of cash which can be risky. It also allows for long-term savings plans and activities such as using debt to invest in a business to leverage future profits as discussed under the various FinTech sectors earlier. A world Bank report stated that more than a billion adults had gotten access to banking accounts in the last decade, adding that China and India were the most successful in Financial Inclusion, with countries like Kenya, in Africa, helping over 200 000 out of extreme poverty (Demirguc-Kunt et al., 2018). Several types of studies were conducted across regions and countries. While earlier papers basically mentioned the definition and nature of financial inclusion (Dev, 2006), more current researchers such as Chakravarty and Pal (2013) and Demirguc-Kunt et al., (2015) investigated ways to measure Financial Inclusion. Other areas of study included finding ways of

tracking and analyzing the progress of Financial Inclusion in different countries (Bayero, 2015; Fungáčová and Weill, 2015; World Bank, 2013;).

A recent study tried to find out if there was a relationship between innovation and finance and to understand if such can promote economic growth. Innovation does not only mean the invention of new products but also includes the adaptation of processes and products from other firms and countries (Statistical Office of the European Communities. and Organisation for Economic Co-operation and Development., 2005). Several economists maintained that innovation is an essential part of economic growth and development (Levine, 2005; Scherer, 2002; Schumpeter, 1934). Since 2011, varied efforts have been employed to cut down the number of the unbanked world. Innovative business models, government reforms, new technologies amongst others have collectively been used to cut about one-fifth of the global population. But there are still about 1.7 billion adults that remain excluded from the financial system with most of them in developing economies. Half of these 1.7 billion adults are reported to live in just seven countries which include China, Bangladesh, Mexico, Indonesia, Pakistan, and Nigeria (Center for Financial Inclusion, 2018; FinTech Futures, 2020)

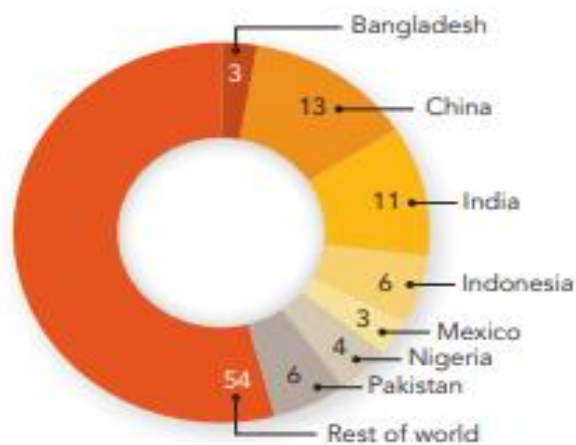


Figure 2.13.7: Unbanked Adults (Demirguc-Kunt et al., 2018)

Irrespective of how and where Financial Inclusion is encouraged when in place, it will not only improve the wellbeing of the citizens by decreasing poverty, risk and opening up opportunities, but it will also have a major impact in the following areas of the economy:

- Reducing corruption
- Reducing tax evasion by shrinking the size of the informal economy as well as increasing transparency in financial activities.
- For developing countries, it will ensure that both domestic and foreign aids reach their target populace.
- Improve efficiency and decrease administrative costs in undertaking government tasks such as pension payments, tax collection, etc.
- Improve security in countries where moving large sums of cash pose a security hazard.

While the traditional banks seem to be inactive in the area of Financial Inclusion (as it is considered to be too risky and non-profitable), most FinTech companies are directing their focus to this domain. This 'unbanked' population can be an interesting group which, if managed rightly, can be profitable beyond expectations. This creates a market opportunity for FinTech companies to deploy their low-cost products and services to explore.

### **2.13.5 Nigeria's Drawbacks to Financial Inclusion**

The recent Finance Act which was signed into Law has brought some changes to the common users. The Nigerian Inter-Bank Settlement System Plc (NIBSS), one of the financial regulators in Nigeria, in September 2019 announced a payment of fifty Naira stamp duty for transactions through POS/web merchants and DMBs; and in what looks like a deliberate step, the CBN, around the same period announced its plans to relaunch the charges on deposits and withdrawals above a certain threshold in some parts of the country. Whilst the circular by NIBSS tends in the direction of revenue generation for the government, CBN's step on the other hand is part of the proposal of its "Cashless Nigeria Project", where huge cash lodgments and withdrawals are being discouraged, also to reduce the high cost of banking services and cost of cash along the value chain. In summary, there is a charge connected for each electronic and POS/web transfers and

there is also a charge for making deposits into the DMBs. These steps are not in alignment with the purpose for starting a cashless project and has been deemed to rubbish the "cashless policy" project (Agboluaje, 2019; Awosanya, 2020). These will obviously, not bring down the cost of banking but would rather, at the expense of the merchants, add to the revenue streams of banks - as the collecting agents- and the government. Ultimately, the purpose of the cashless initiative is defeated, and this move will impede CBN's financial inclusion campaign as it will not encourage the utilization of digital payment platforms (Awosanya, 2020).

A recent report by Daily Post showed that most filling stations in the country have now suspended using POS terminals (Nseyen, 2019; Opejobi, 2019), as the apex bank had initially pointed out in one of its circulars that the cost is to be borne by receiving accounts (the merchants) in the case of POS/web payments. Either way, the stamp duties will likely drive off customers or will have an adverse effect on the merchants' profitability, which now leaves the merchants with no choice but to encourage cash transactions and the customers to avoid the use of banks and debit cards (Awosanya, 2020).

NIBSS report showed that after enjoying four months of steady increase, there was a drop of about N59.26 billion (£133 million) in the value of POS transactions carried out in between December 2019 and January 2020, and also a drop in transaction volume of about 4.8 million during the same period; and this is not unconnected to the introduction of POS /web charges.

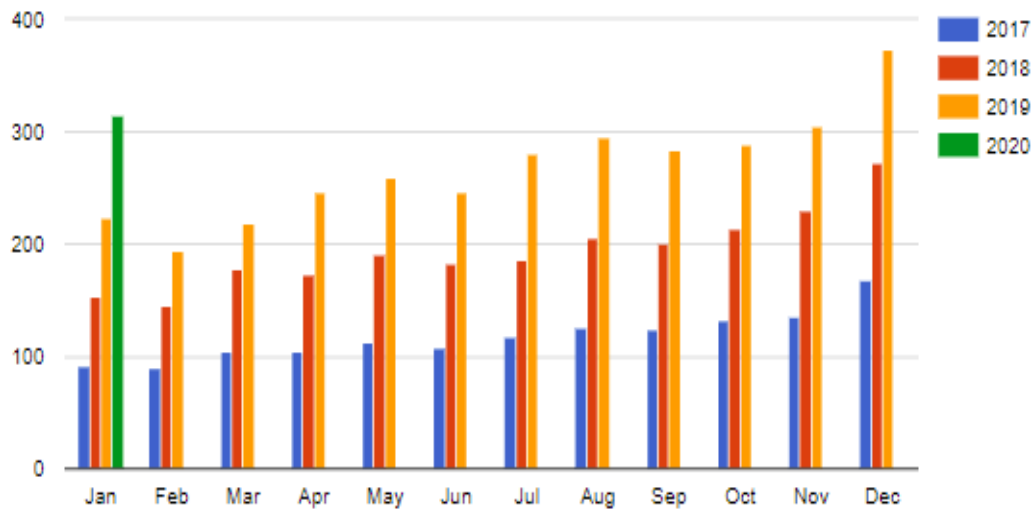


Figure 2.13.8: Value of POS transactions in billion NGN (NIBSS, 2020)

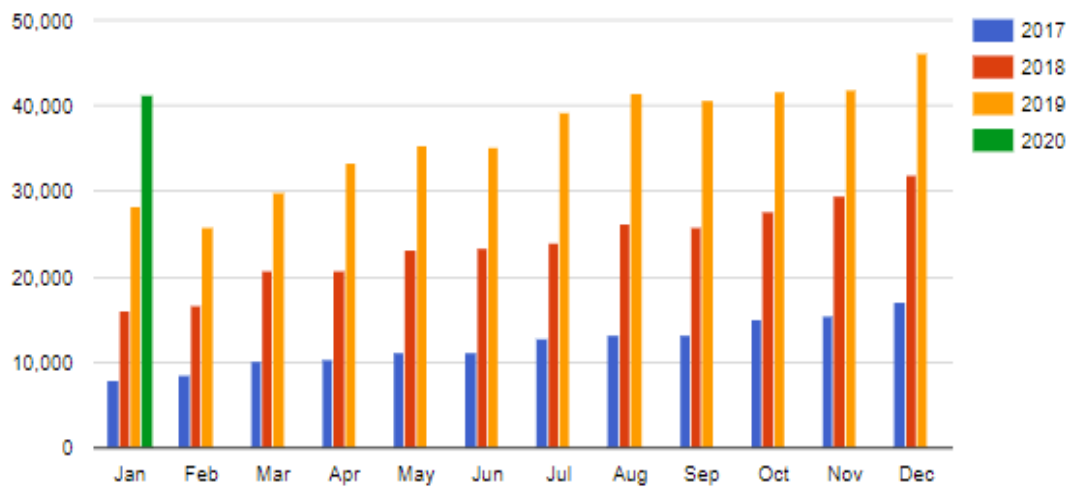


Figure 2.13.9: Volume of POS transactions in thousands (NIBSS, 2020)

This is despite the campaign by the Central Bank to promote the cashless policy and financial inclusion. In a similar development, the number of active bank accounts have reduced to 63.5 million in 2017 from 65 million in 2016. According to this report, the reduction is not unconnected to unnecessary and illegal bank charges, and unattractive interest rates.

Another major factor for the reduction was the introduction of Biometric verification (BVN) exercise that was imposed by the Central Bank of Nigeria (CBN) for the reason of accounts unification, fighting corruption, and a move towards financial inclusion which was aimed at bringing in more individuals into the formal system and ensuring that the bulk of cash in the economy remains within the banking sector. The lack of financial sophistication and how to include the rural dwellers in this exercise has poised a big challenge to the industry (Ishaya, 2018; P. M. News, 2018).

Nigeria's current situation highlights the significance of the regulatory environment in both inhibiting and enabling FinTech. FinTech innovations may not only be inhibited by the regulations alone, but also by the regulatory uncertainties. If a regulatory body is not in the position to review regulations to accommodate new business models or technologies, they can then adopt enabling initiatives which can be in the forms of offering guidance to organizations to see where there might be potential issues of compliance or they can offer controlled environments where testing compliance of new products can be done, usually called 'Regulatory Sandbox' as explained in previous sections.

Apart from the regulatory authorities, there also exists self-regulation which facilitates the entry of new technology. The Shanghai Financial Information Association (SFIA) was founded in 2015 in China as the first self-regulatory FinTech association. The association helps in establishing a baseline for market entrants drafts agreement templates as well as develop industry standards, all in line with the government regulatory requirements (World Economic Forum, 2016). Other guides and standards that summarise best practices that have been set up by specific associations include the Basel Committee on Banking Supervision's paper on 'Implications of FinTech developments for banks and bank supervisors (Basel Committee on Banking Supervision, 2018), and IMF staff discussion Note on FinTech and Financial Services: Initial considerations. (He et al., 2017). With such flexible and diverse policies and regulations, any



rising issue can simply be mapped and consulted which in turn, will assist in the formulation of the appropriate regulatory response.

### **2.13.6 Growing Financial Inclusion via Digital Technology**

Digital technology alone is not enough to grow Financial Inclusion. A properly developed payment system, suitable regulations, good basic infrastructure, and robust consumer protection safeguards are required for people to gain from digital services. Whether analogue or digital forms, financial services should be designed and required to meet the needs of the under-privileged or first-time users that may have minimal numeracy and literacy skills.

**Digitize routine cash payments:** It is not enough to just create an account, actively using the account for managing risk, saving money, or receiving payments is also essential for Financial Inclusion. Routine moving of cash payments -such as public sector pensions, wages, and any social benefit- by government and businesses into accounts could dramatically reduce the number of unbanked populations in Nigeria. Previous data provided, and as pointed out in chapter 2 showed that a large majority of these adults have the basic technology required to receive such payments. Two-thirds of the 60 million unbanked adults worldwide that benefit from such payments own a mobile phone (Demirguc-Kunt et al., 2018). About one out of ten unbanked adults in Nigeria work with the private sector and get paid in cash, this includes nearly four million who own mobile phones.

Over 70% of Nigerian population are farmers (Suleiman, 2013) and roughly 15 million unbanked receive payments for sales of agricultural products in cash. This includes about ten million mobile phone holders (Klapper and Popovic, 2018). The digitization of agro-business supply chains can be a major conduit that will help expand access to insurance and credit for small- as well as and large -scale farmers.

A Global Findex research data revealed several opportunities that could help account owners put their accounts in constant use. One billion adults worldwide still make use of cash for utilities payment (Demirguc-Kunt et al., 2018; Felsenthal and Hahn, 2018). But if the providers of such

utilities are offered an attractive option for receiving bills digitally, both users could reap great benefits and form increased efficiency.

**Strengthen consumer protection:** there are concerns about fraud and deception, and how safe it can be to transact online. As such, it is important to enforce strong consumer protection regulations to safeguard customers' funds against unauthorized and mistaken payments. Other factors that can be of concern to consumers also include unexplained charges, data protection, fair treatment, and dispute resolution.

**Targeting the female gender:** Global Findex report suggests that mobile money accounts could help in narrowing gender gaps in some sub-Saharan African economies. Nigerian records showed that while 51% of the male gender have a mobile or financial account, only 27% of the female gender do. This difference of 24% represents twice as large as the region's average (Klapper and Popovic, 2018).

Notwithstanding the increase in payment channels that exist in Nigeria, digital payments remain significantly un-tapped. Cash remains the means of payment of goods and services. Enterprise Development Centre (EDC) of the Pan African University reported that cash payment accounted for 95.3% of transaction volumes as at end of 2018 which showed a slight improvement of 2013 figures of 99.6% transaction volume (CSL Brokers, 2020).

### **2.13.7 The Starring Role of Banks and Government**

Predicting the downfall of banks comes down to understanding the roles played by the banks across various regions and markets.

On the basic consumer and retail level, their roles include collecting deposits, giving out loans while also facilitating currency exchange, and facilitating payments. Most households in developed countries keep at least one bank account used as a centre for making payments, receiving pay checks, and saving money. But in under-banked regions like in Asia and Africa, many households and individuals keep their savings with them, in cash. To be more precise,

bank penetration in developed countries is approximately 89% as compared to 41% in developing countries.

The basic role of FinTech start-ups is to provide secured payment apps and mobile wallets, letting the unbanked populace to safely store their money and also process cashless transactions. Such dynamics allow for smaller FinTech start-ups to play the role of banks by providing a secured spend, payment, and borrowing methods using mobile apps. In such a market, a deteriorating banking landscape is a likelihood. In Nigeria, FinTech companies such as Flutterwave and Carbon provide secured and convenient payment methods, which are cheaper and faster than transferring funds from one bank account to another. Lower interest rates loans are provided by lending platforms such as Lidyia and Fairmoney. Other services rendered by FinTech include savings by Piggyvest and Sumotrust, and 'buy now pay later' services by Cowriepay.

These services provided by FinTech companies are giving the banks a stiff competition. On the other hand, customers feel more secured using the banks when large deposits are involved. And despite the easy loan processes by FinTech companies, customers mostly turn to the traditional banks when they require services of more complicated processes of large borrowing such as for cars or house purchase. While it is obvious that consumer facing FinTech start-ups have captured the market through speed and efficiency, it is hard to envision a future where the traditional banks disappear from the scene (Frost & Sullivan, 2018).

#### *Nigeria Demographics and country metrics*

In 2014, Nigeria overtook South Africa, becoming the largest economy in Africa but then contracted within 2015-2016 as a result of mineral price drops which also impacted the foreign reserves. The ICT sector which was worth \$35.2 billion contributed to 8.7% GDP as compared to 0.6% of 2001 (Frost and Sullivan, 2018). According to Nigeria's National Bureau of Statistics, the ICT sector is categorized into four segments with telecoms contributing 75% of the sector's revenue. Others include publishing, motion pictures, and broadcasting. This sector has become one of the major priorities of the Nigerian Government as an enabler of growth and this is because of the obvious reason that technology can deliver cost-effective public -and other essential- services such as health, transportation, banking and finance, amongst others.



Key Country Metrics (2016)	
Population (2017)	186.0 million
GDP	US\$404.7 billion
GDP Growth (2017-2022)	1.5% est.
Foreign Direct Investment	\$5.12 billion
Currency (March 2018)	NGN (₦) 1 USD = (₦)360

Figure 2.13.10: Key country metrics-Nigeria (Frost & Sullivan, 2018).

- Key market initiatives have a record of cancelled or delayed projects execution in Nigeria. These include National identity card project, the Digital Switch project, and the Code Lagos project. A \$1 billion company was proposed to be built in 2017 in order to boost locally developed technology and associated services in a bid to help in transforming Nigeria into a producer of ICT products and services instead of just being consumers of overseas produced products and services (Frost and Sullivan, 2018). A SWOT analysis of Nigeria was done in 2017 by Frost and Sullivan and the following were the results:

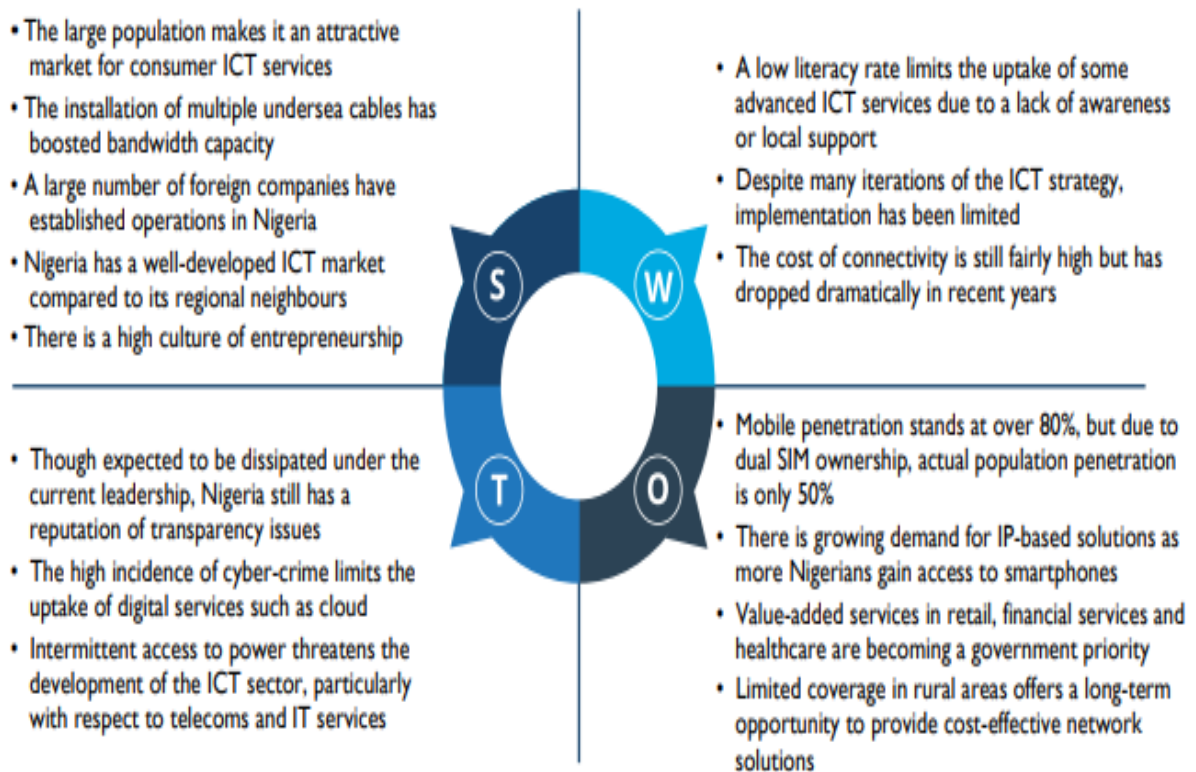


Figure 2.13.11: Nigeria SWOT Analysis ((Frost and Sullivan, 2018)

A base of pyramid model was also used, and the following conclusions were made:

- Nigeria has one of the continent's highest internet penetrations and with about 91.5 million users, the highest number of internet users in the region (Frost and Sullivan, 2018).
- Nigeria suffers daily power cut due to a long-time legacy of under-developed electricity infrastructure. With just a 45% rate of electrification, Nigeria falls outside of the top 150 global ranking.
- The Nigerian literacy level stands at 59.6% and the government is planning to enable the provision of education through technology advancement.
- As of 2016, the unbanked population in Nigeria stood at 53% which the government aimed to increase to 80% by 2020. The target is to achieve that through FinTech solutions, hence the increasing support given to FinTech industry by Nigerian financial regulators.

- Due to its huge diaspora population in the UK, the US, and other parts of Europe, Nigeria has the largest remittance markets in Africa.
- According to Business Process Outsourcing (BPO) by Frost and Sullivan, due to its large, English-speaking and educated populace, Nigeria has the potential of becoming the major contact centre market in Africa.
- As reflected by the large numbers of Pay-T. V subscribers, Nigeria holds the highest market for entertainment which is an opportunity for investors.

*Product (Government) policies and structures.*

Several legislative amendments have in recent years been deployed to shape the development of digital services in Nigeria, they include:

1. A disaster recovery plan: which banks are expected to have in place; to avoid losing financial data. This data should be hosted in a third-party provider's data center facility, which is expected to be a back-up to an in-country data host, as mandated by the CBN. Doing this will not only keep data safe but will also boost the country's cloud services market as regards to both connectivity and storage.
2. A regulatory framework. By offering payment and lending services, FinTech companies fall under the regulation of the CBN. They also fall under NCC regulations based on mobile services usage, as well as value-added-services (VAS) licensing framework. Most FinTech companies, specifically the start-ups, may find it too onerous to handle some regulations such as money laundering and as such, regulators are being compelled to reconsider some regulatory requirements placed on providers.
3. Consumer Protection Act, which was formerly based on Nigeria's Consumer Protection Act of 1992, was considered obsolete and insufficient in addressing consumer protection in the eCommerce market. There was a later shift to the Evidence Act (2011) and recently, the Electronic Transaction Bill passed in 2017. This was modeled on the United Kingdom's Electronic Communication act (ECA) 2000, which covers the use of electronic signature to complete transactions.

One major objective of the Nigerian Government -and driven by the CBN- is to increase the country's financial inclusion which is seen as a gateway to achieving its mandate of economic

growth and prosperity. The creation of a cashless society was one of the main initiatives launched by the government, with a goal to improved transparency, and efficiency of transactions. Targets that were set included the Financial Inclusion Strategy of reducing the financial exclusion rate from 53.7% in 2010 to 80% by 2020. With the limited banking infrastructure, the CBN became more receptive to FinTech solutions to enable the shift towards a cashless society. Below is the statistics by individual sub-sector under FinTech.

Metric	2010	Target 2020
Access to Payment Services	21.6%	70.0%
Access to Savings	24.0%	60.0%
Access to Credit	2.0%	40.0%
Access to Insurance	1.0%	40.0%
Access to Pensions	5.0%	40.0%
Financial Inclusion	46.3%	80.0%

Figure 2.13.12: Nigerian Financial inclusion target (Frost & Sullivan, 2018).

## 2.14 Situational Analysis

A simple way of analyzing a business environment is using a relevant and wide-reaching framework. This is a framework for research and practice which entails a systemic inquiry of complex issues or problems that impacts on systems and individuals, and it is fundamentally ecosystemic in structure (Annan, 2005).

This analysis represents the scanning and assessing of the current organizational context, the external environment, and the environment inside of an organization. It includes the assessment of internal resources and processes of a company as well as its activities in the market, the closest environment including demand and competition, and other external factors, which are likely to influence the company's business. Acquiring such information about the structure and

trends shown by internal and external factors makes it possible to create an effective strategy for success. To see the big picture of the studied environment, there is a need to analyze both internal and external context. PEST analysis will provide the external assessment which will lead to the review of threats and opportunities, while the review of strengths and weaknesses will determine the internal perspectives. (PESTLE Analysis, 2020)



Figure 2.14.1: Situation Analysis (PESTLE Analysis, 2020)

### 2.14.1 PEST Analysis

The external framework of any strategic decision usually has an extensive range. The range can include technological, government, competitors, dynamics of the buying and selling market, as well as social changes. An effective way of analyzing exposures by managers is by the application of PEST Analysis to the set of the probable contextual factors (McGee et al., 2005 p. 13)

PEST Analysis, which is also the study of macroenvironment, is a measurement tool used in understanding the market decline or growth, which in turn gives the potential, position, and direction for a business. PEST is an acronym for Political, Economic, Social, and Technological factors that are used to assess the market for organizational progression. Organizations exist as part of a larger ecosystem and as such, vulnerable to various exogenous factors that can have key impacts on the organizational competitive positioning. The analysis is a framework used for



reviewing organizational situations, strategies, or positions of an organization (Chapman, 2008; PESTLE analysis, 2015). A brief description of each factor is made below:

**Political:** This factor is concerned with the extent to which policies are likely to affect or intervene in the commercial environment. Taxation, trade, taxes, and environmental legislation are factors to be considered. Others include political stability and commercial restraints. These factors are crucial in determining the success or failure of a business. The Figure below summarizes the political factors in strategic analysis.



Figure 2.14.2a: Examples of political factors (Sammut-Bonnici & Galea, 2015).

The political analysis of a country, in terms of business, at best, provides a myopic view. To expand their horizons, businesses will have to look beyond their shores to remain aware of the happenings at a supranational level. The lowest influence wielded by the political scrutiny at the supranational level delivers the required intellect to create the right strategies for adjusting to changes in the political environment. Areas of national policy likely to have a substantial impact on the strategies of a business sector comprise licensing procedures, approval of new processes, products and services, planning and permitting, national incentives for the organization, fiscal policy, government priorities for supporting well-defined segments in the economy. Even as the

majority of world economies have adopted the free-market model, areas with market imperfections are met with considerable interventions by the national governments.

Certain political interventions are likely meted out in sections that affect facets of the economy. Infrastructure is normally provided through a private-public partnership or directly by the government. These organizations are expected to operate in highly regulated markets and when political dynamics are considered, these organizations will eventually benefit from the evaluation and scrutiny of the political environment where they operate.

**Economic:** This has the most visible impact on the appeal and profitability of an industry. The most prevalent marker of economic performance the Gross Domestic Product (GDP) per capita is often assessed at Purchasing Power Parity (PPP) to allow unbiased comparisons between different countries. Though being a valuable indicator, GDP/ capita only gives a partial perspective of the economic factors that may have an impact on an organization. Whilst it is impossible for an organization to alter the economic situation, it can certainly prepare to better deal with fluctuations (Alanzi, 2018). See the Figure below for more examples of economic factors.

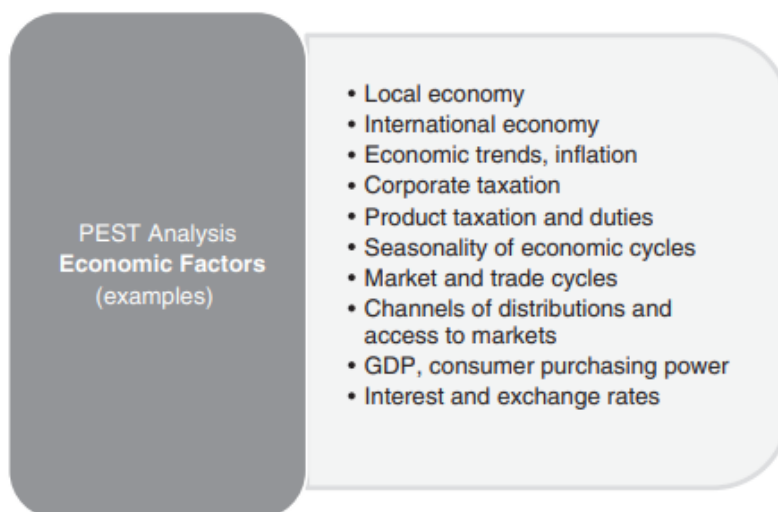


Figure 2.14.2b: Examples of economic factors Sammut-Bonnici & Galea, 2015).

**Social:** Understanding the qualities and characteristics of a population (age distribution, demographics etc) with an aim to comprehending its buying behaviour is crucial to conquering a market. Other characteristics and trends that help an organization to refine their assessment of particular needs include the history (traditions and roots), work patterns, consumer preferences and taste, volume of product and service demands as well as religious and socio-cultural habits (fashion, means of communication, media etc.) (Sammut-Bonnici & Galea, 2015; Alanzi, 2018). This monitoring trend allows an organization to reposition its services to align with the changing expectations of consumers.

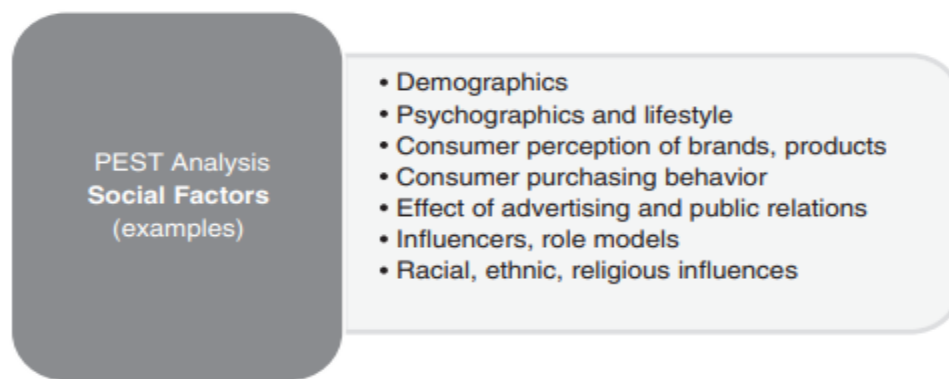


Figure 2.14.2c: Examples of social factors (Sammut-Bonnici & Galea, 2015).

**Technological:** The quick pace at which technology changes, driven by innovation, has forced entrepreneurs to push boundaries of the current constraints. With the breaking of new frontiers, technology can quickly become obsolete, which will always make a competitive advantage short-lived. These innovations can either mean the downfall of some industries or create openings for new ones. The rise of e-commerce and the internet has eliminated many intermediaries such as human agents and supply chain members. While on the other hand, technological advancement has again given birth to new forms of intermediaries such as eBay, Expedia, Amazon amongst others. The advantage is the effective integration within social networks where consumers can publish their views on products and services. These views provide added value in the supply chain which can be highly appreciated by potential consumers. Two types of technological change exist: development in IT such as increased functionality of an innovation, and development in the technology specific to a market or industry, such as enhancements to manufacturing technology (Alanzi, 2018).

Figure 2.14.2d below shows the various examples of the technological factors that have effects on an organizational competitive position.

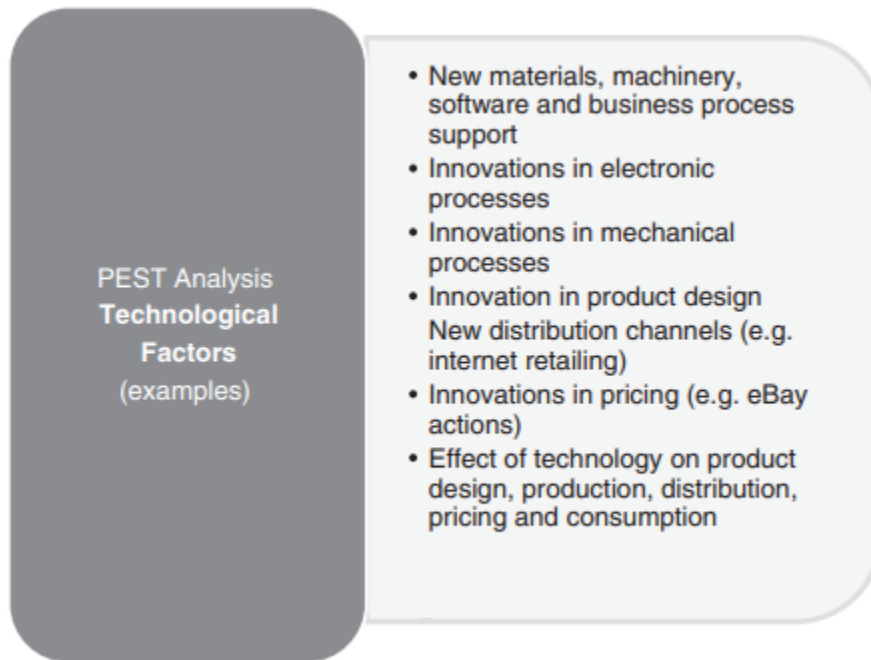


Figure 2.14.2d: Examples of technological factors (Sammut-Bonnici & Galea, 2015).

### *PEST Analysis processes*

Various opinions exist on the processes of PEST Analysis, although they generally bear the same trends. The following is a Five-step process chosen for exploring an organization's macro environment (Sammut-Bonnici & Galea, 2015).

1. Identifying the current and future factors in the organizational external environment for each factor.
2. Analyzing the likely effects of the organizational competitive position for each factor.
3. Categorizing each factor into threats and opportunities for the organization.

4. Prioritizing the strategic significance of each set of PEST opportunities and threats, rating them based on the period of impact on the organization.
5. Developing a strategic action to pre-empt the negative effects and to develop on the positive effects.

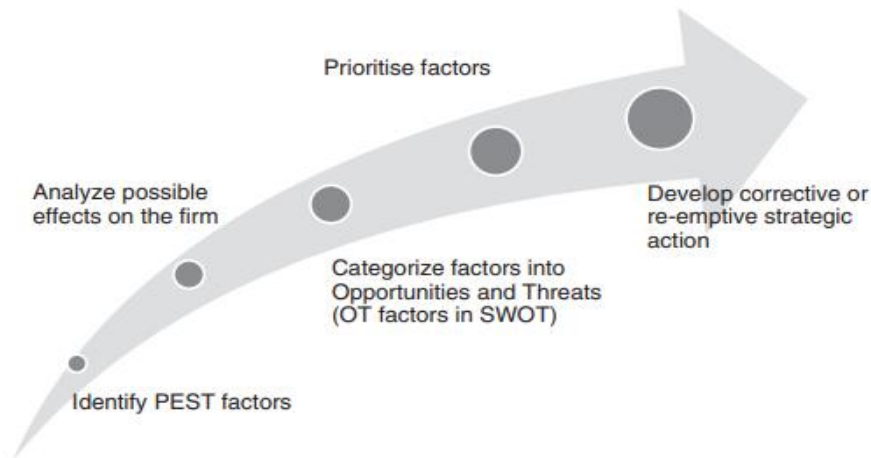


Figure 2.14.3: PEST Analysis process. (Sammut-Bonnici & Galea, 2015)

### 2.14.2 SWOT Analysis

An organization identifies the key threats and opportunities in its environment by performing an external analysis. It also explores the way competition is likely to develop and the implications of such development on threats and opportunities faced by the organization. As external forces concentrate on the environmental opportunities and threats confronted by an organization, not only does internal analysis aids the organization in identifying its strengths and weaknesses, but it also makes the organization understand which of its capabilities and resources are likely to be sources of a big advantage (Gürel, 2017).

A SWOT analysis involves evaluating the strengths, weaknesses, opportunities, and threats of an organization. This follows the idea that an organization's good performance is the result of effective interaction of the organizational management with its external and internal environment

and represented by its strengths and weaknesses. The characters of an organization are evaluated by surveying various management areas and granting insight to their importance within the company's framework. The Figure below throws more light on each element.

<u>Strengths</u>	<u>Weakness</u>
<ol style="list-style-type: none"> <li>1. Specify your business' strengths.</li> <li>2. In what way your business is better than others.</li> <li>3. Unique technical or professional skills your business possesses.</li> <li>4. What are your strengths as perceived by your competitors.</li> </ol>	<ol style="list-style-type: none"> <li>1. What are your weakness according to your internal assessments?</li> <li>2. In what way your peers stand above you?</li> <li>3. Improvement areas where you should focus upon.</li> <li>4. What are your weakness areas as perceived by your competitors.</li> </ol>
<u>Opportunities</u>	<u>Threats</u>
<ol style="list-style-type: none"> <li>1. The unique features you can provide to your potential clients.</li> <li>2. What are the various opportunities being available in terms of regions.</li> <li>3. What are the different attributes which have positive impact on your business.</li> </ol>	<ol style="list-style-type: none"> <li>1. The absence or lack of any features in your product or service.</li> <li>2. What are the areas where your peers are doing well above your products or services.</li> <li>3. The absence of adequate financial resources to support the various potential business opportunities.</li> </ol>

Figure 2.14.4: SWOT Analysis (WallStreetMojo, 2020).

**Strength:** Strength in an organization means organizational competencies that play an effective role in achieving organizational goals. Any organization is expected to know its potentials and those aspects which makes it stronger and more advantageous than other organizations.

**Weakness:** in an organization, weakness refers to situations where the existence and capabilities of an organization are weak when compared to other organizations. It also means that the organization is less efficient and effective when compared to its competitors. Such negative aspects affect the organizations which are consequently not able to adapt to changes or respond to possible opportunities or problems.

**Opportunities:** this simply means a condition that is suitable for an activity. Opportunity is a driving force or advantage for an activity to occur. In an organization, opportunity means a convenient situation or time presented by the environment for the organization to achieve its goals. Opportunities are expected to yield positive results, determined as an outcome of its environmental analysis. Opportunities can also be said to be conditions in the external environment that lets an organization take advantage of organizational strengths, overcome weaknesses, or neutralize environmental threats (Harrison and St. John, 2004 p.164; (Gürel, 2017).).

**Threats:** This refers to disadvantageous conditions, and as such has a negative characteristic that should be avoided. A threat to an organization is that element that makes it impossible to attain organizational goals. These threats are basically because of changes in the environment that will likely prevent the organization from maintaining its superiority in competition. Any environmental factor that impedes organizational effectiveness and efficiency is deemed a threat (Gürel, 2017).

## 2.15 Thematic Analysis

Topic	Author	Contributions
Global FinTech investment	Pollari and Ruddenklau (2020)	Pulse Of Fintech H2 2019.
Nigeria	CIA (2020)	Africa: Nigeria — The World Factbook - Central Intelligence Agency
	Falola et al., (2020)	Nigeria   Culture, History, & People
	Sanusi (2011)	Banking reform and its impact on the Nigerian economy.
	Nigerian Stock Exchange (2020)	Who we are

	Kemp (2020)	<i>Digital 2020: Nigeria — Datareportal – Global Digital Insights.</i>
	CEIC (2020)	Nigeria Real GDP Growth [2011 - 2020] [Data & Charts].
	World Bank Group (2018)	GDP Growth (Annual %) - Nigeria   Data.
	Kazeem (2018)	<i>Startup Venture Funding Jumped More Than 50% In Africa Last Year to A Record High.</i> [online] Quartz Africa.
FinTech	(Fortnum et al., 2017)	The Pulse of Fintech: Global Analysis of Investment in Fintech, Fourth Quarter 2016
	Iman (2020)	The rise and rise of financial technology: The good, the bad, and the verdict.
	(Hochstein, 2015)	Fintech (The Word, That Is) Evolves.
	Barbiroli (1997)	The Dynamics of Technology
	Hills (2002)	The Struggle for Control of Global Communication
	Lerner (2013)	Mobile Payment
	Arner et al. (2015)	The evolution of fintech: A new post-crisis paradigm?
	Jegher, Lodge and Zhang, (2015)	IT Spending in Banking: A Global Perspective
	MacDonald and Tompkins (2017)	The History of Credit Cards
	Welch (1999)	Electronic Banking and Treasury Security



	Kennon (2019)	What to Know About The NASDAQ, The World's Second-Largest Stock Market.
	CNBC (2014)	Michael Bloomberg Gets Fired, Changes Wall Street
FinTech Segments	Pilcher (2012)	Infographic: The History of Internet Banking (1983 - 2012)
	Osawa, (2015)	Tencent's Wechat App to Offer Personal Loans in Minutes
	Moody's (2015)	Threat of Cyber Attack on US Utilities Cushioned by Likelihood of Government Support
	Accenture (2016)	Global Fintech Investment Growth Continues In 2016 Driven by Europe And Asia, Accenture Study Finds.
	(Dietz, HV and Lee, 2016)	Bracing for Seven Critical Changes as Fintech Matures
	World Bank (2018)	Global Financial Development Report 2017/2018: Bankers without Borders.
	Newman (2018)	Exploring 5 Trends Driving the Fintech Revolution.
	Gustin (2015)	How Banks are investing in Fintech
	(Heggestuen (2015)	Here Are The 5 Main Players That Make Up the Fractured, Complex Credit Card-Processing Ecosystem.
	Accenture (2018)	Global Venture Capital Investment in

	Fintech Industry Set Record In 2017, Driven by Surge in India, US And UK, Accenture Analysis Finds
Accenture (2016)	Fintech And the Evolving Landscape: Landing Points for The Industry
Bennet (2016)	<i>Introduction.</i> An Introduction to Fintech: Key Sectors and Trends
Panno (2016)	<i>Payments.</i> An Introduction to Fintech: Key Sectors and Trends
Kessler (2016)	<i>Digital Lending.</i> An Introduction to Fintech: Key Sectors and Trends
Holt (2016)	<i>Blockchain.</i> An Introduction to Fintech: Key Sectors and Trends
Garber (2016)	<i>Digital Wealth Management.</i> An introduction to fintech: Key sectors and trends.
Pollari and Raisbeck (2018)	<i>The Pulse of Fintech Q4 2017.</i> Global analysis of investment in fintech
Hayes (2018)	FICO Score Definition
Nze (2017)	The Future of Microfinance Is Mobile: Fintech Resolves Three Key Obstacles of Lending To The Unbanked
Atz and Bholat (2016)	Peer-to-peer lending and financial innovation in the United Kingdom
Fortnum et al., (2017)	<i>The Pulse of Fintech: Global Analysis Of</i>

		<i>Investment In Fintech, Fourth Quarter 2016</i>
FinTech Drivers	Fortnum et al., (2017)	<i>The Pulse of Fintech: Global Analysis Of Investment In Fintech, Fourth Quarter 2016</i>
	Gelis and Woods (2014)	The Rise of Fintech in Finance
	Vision critical (2012)	<i>3 Factors Driving Fintech Start-ups (and what banks Need to do to compete).</i>
	Newman (2018)	<i>Exploring 5 Trends Driving the Fintech Revolution</i>
Benefits of FinTech	Crowdfunding's Potential for the Developing World (2013)	infoDev@, Finance and Private Sector Development Department.
The Disruption	FSB (2016)	<i>Financial Stability Board Agrees 2017 Workplan</i>
	Gustin, 2015)	<i>How Banks Are Investing in Fintech</i>
	Fortnum et al., (2017)	<i>The Pulse of Fintech: Global Analysis Of Investment In Fintech, Fourth Quarter 2016</i>
	Accenture (2016)	Fintech And the Evolving Landscape: Landing Points For The Industry
	Walden, I. and Christou, T. (2018)	<i>Legal and Regulatory Implications of Disruptive Technologies in Emerging Market Economies</i>
	(World Bank Group, 2020)	<i>How Does The World Bank Classify Countries? – World Bank Data Help Desk.</i>

	White, M., Killmeyer, J. and Chew, B. (2020)	<i>Will blockchain transform the public sector? Deloitte Insights</i>
FinTech Ecosystem	Diemers et al. (2015)	Developing a FinTech ecosystem in the GCC
	Lee & Shin (2017)	Fintech: Ecosystem, business models, investment decisions, and challenges
	(GIIN, 2015)	<i>The Landscape For Impact Investing In West Africa</i> . Understanding the current status, trends, opportunities, and challenge
	PwC (2016)	<i>Financial Services Technology 2020 And Beyond: Embracing Disruption</i>
	Fortnum et al., (2017):	<i>The Pulse Of Fintech: Global Analysis Of Investment In Fintech, Fourth Quarter 2016</i>
	Lee and Shin (2018)	Fintech: Ecosystem, business models, investment decisions, and challenges.
Regulation	Liu et al., (2011)	Resource fit in digital transformation: Lessons learned from the CBC Bank global e-banking project.
	Prieger (2002)	Regulation, innovation, and the introduction of new telecommunications services.
	Cheng (2014)	<i>Yu'E Bao Wow! How Alibaba Is Reshaping Chinese Finance</i> .
	Walden, I. and Christou, T. (2018)	<i>Legal and Regulatory Implications of Disruptive Technologies in Emerging Market Economies</i>
	Jenik and Lauer (2017)	Regulatory Sandboxes and Financial Inclusion

	Member (2018)	The Role of Regulatory Sandboxes In Fintech Innovation
	CFPB (2016)	Project Catalyst Report: Promoting Consumer-Friendly Innovation
	FCA (2015)	Regulatory Sandbox
	FSB (2016)	<i>Financial Stability Board Agrees 2017 Workplan</i>
Global Investment	Bank For International Settlement (2018)	<i>Basel Committee On Banking Supervision. Implications of fintech developments for banks and bank supervisors</i>
	Pollari and Raisbeck (2018)	<i>The Pulse Of Fintech Q4 2017. Global analysis of investment in fintech</i>
	Accenture (2016)	Fintech And The Evolving Landscape: Landing Points For The Industry
	Brinker (2018).	<i>One Thing Everybody Forgets About Gartner'S Hype Cycle.</i>
	Pollari and Ruddenklau, (2020).	<i>Pulse Of Fintech H2 2019</i>
FinTech in Sub-Saharan Africa and Nigeria.	Lim, et al (2016)	<i>Africa And The Global Fintech Revolution</i>
	PwC (2016)	<i>Financial Services Technology 2020 And Beyond: Embracing Disruption</i>
	Fatah (2017)	<i>Investment = Inclusion: Can Fintech, With A Boost From Investors, Level The Playing Field For The Unbanked In Africa?</i>
	Shapshak (2019)	<i>Africa's Fintech Ecosystem Raised \$320M</i>

		<i>And Grew 60% In Two Years.</i>
	Adepetun (2017)	Nigeria, other investments in FinTech hit \$800m
	James-Yakub (2019)	Understanding FinTechs in Nigeria; the myth, strengths, weaknesses, opportunities, and threats.
	Partech (2018)	<i>2018 Was A Monumental Year For African Tech Start-Ups, With US\$ 1.163 Billion Raised In Equity Funding, A 108% Yoy Growth</i>
	Shapshak (2020)	<i>African Startups Raised \$1.34 Billion In 2019</i>
	Collon (2018)	In another record-breaking year, African Tech Start-ups Raised US\$ 560 Million in VC funding in 2017, a 53% YoY Growth
	Kazeem (2018)	<i>Startup Venture Funding Jumped More Than 50% In Africa Last Year To A Record High.</i>
	Nze (2017)	<i>The Future Of Microfinance Is Mobile: Fintech Resolves Three Key Obstacles Of Lending To The Unbanked - Nextbillion</i>
	Leke et al. 2018)	<i>Africa's Business Revolution</i>
	CSL Brokers (2020).	<i>Nigeria's Fintech Industry 2020: The Growth Frontier Of The New Decade</i>
	Accenture (2016)	Fintech And The Evolving Landscape: Landing Points For The Industry

(Dahir, 2018)	<i>Africa's Newest Startup Hubs Are Expanding Beyond Its Legacy Tech Markets.</i>
Gupta (2018)	<i>A Brief History of Blockchain, Harvard Business Review</i>
Demirguc-Kunt et al., (2015)	The Global Findex Database 2014: Measuring Financial Inclusion around the World
(Akinkugbe, 2012)	<i>Investing And Doing Business In West Africa: Key Drivers And Perspectives.</i>
Boiko (2019)	<i>Middle East And Africa: The Biggest Underserved Fintech Regions - Tips &amp; News</i>
Dimock (2019)	<i>Defining Generations: Where Millennials End And Generation Z Begins.</i>
We Tracker (2020)	<i>African Venture Capital And Tech Startups Funding Report - 2019.</i>
Agbugah (2016)	<i>Africa Could Have More Smartphone Users Than The Entire Middle East By 2035.</i>
O'Dea (2020)	<i>Smartphone Users In Nigeria 2014-2025   Statista.</i>
Sahara Reporters (2019)	Nigeria's Internet Users Hit 115.9 Million. <i>Sahara Reporters</i>
IWS (2020)	<i>Africa Internet User Stats And 2020 Population By Country</i>
Clement (2019)	<i>Nigeria: Number Of Internet Users 2023   Statista</i>
Olukoya (2016)	<i>Paypal Ranks Nigeria 3Rd In Mobile</i>

		<i>Shopping</i>
	MEDICI (2017)	<i>MEDICI   56 Fintechs Companies In Nigeria Enabling Inclusive Growth.</i>
	CIA (2020)	Africa: Nigeria — The World Factbook - Central Intelligence Agency
Financial Inclusion	Lochy (2020)	Financial inclusion - A word with many meanings
	Patwardhan (2018)	Financial Inclusion in the Digital Age
	Awosanya (2018)	<i>Technology can't induce financial inclusion, it can only mimic our decisions</i>
	Kabakova and Plaksenkov (2018)	Analysis of factors affecting financial inclusion: Ecosystem view
	Demirguc-Kunt et al. (2015)	The Global Findex Database 2014: Measuring Financial Inclusion around the World
	Digital Finance Institute (2020).	<i>Financial Inclusion – Digital Finance Institute.</i>
	FinTech Futures (2020)	<i>The Global Unbanked Shoppers</i>
	The World Bank, 2017)	<i>Sub-Saharan Africa   Data</i>
	Collett (2016)	<i>The Unstoppable Rise Of Fintech In Africa</i>
	EMCompass (2017)	<i>How Fintech Is Reaching The Poor In Africa And Asia: A Start-Up Perspective.</i>
	The World Bank (2018)	<i>Data   The World Bank.</i>
	(Demirguc-Kunt, A. et al. (2018)	<i>The Global Findex Database 2017: Measuring Financial Inclusion And The</i>



		<i>Fintech Revolution</i>
	Klapper, EL-Zoghbi and Hess (2016)	<i>Achieving The Sustainable Development Goals The Role Of Financial Inclusion</i>
	(UNCDF, 2020)	<i>Financial Inclusion And The Sdgs - UN Capital Development Fund (UNCDF).</i>
	Chakravarty and Pal (2013)	Financial inclusion in India: An axiomatic approach
	Dev (2006)	Financial Inclusion: Issues and Challenges
	Fungáčová and Weill (2015)	Understanding financial inclusion in China
	World Bank Group (2013).	Global financial development report 2014: Financial inclusion
	Statistical Office of the European Communities. and Organisation for Economic Co-operation and Development., (2005)	<i>Oslo Manual: Guidelines For Collecting And Interpreting Innovation Data, 3Rd Edition</i>
	Levine (2005)	Finance and Growth: Theory and Evidence. Ch. 12, p. 865-934 in Aghion, Philippe and Durlauf, Steven eds
	Scherer (2002)	“The Free-Market Innovation Machine: Analyzing the Growth Miracle of Capitalism. By William J. Baumol. Princeton, NJ
	Schumpeter (1934).	<i>The theory of economic development – An inquiry into profits, capital, credit, interest,</i>

		<i>and the business cycle</i>
	Center for Financial Inclusion (2018).	New Global Findex: 69 Percent of Global Population Is Banked.
	Fintech futures	<i>2017: The Year Fintech Shifts Its Focus To Africa.</i>
	Agboluaje (2019)	<i>Women entrepreneurs fault stamp duty charges on POS transactions, seek review</i>
	Nseyen (2019)	"CBN discouraging cashless policy with new charges on electronic transactions – Nigerians cry out"
	Opejobi (2019)	NEWSCBN cashless policy in trouble as filling stations suspend use of POS over new charges
	NIBSS (2020)	<i>Point Of Sale – NIBSS.</i>
	Ishaya (2018)	<i>Nigerian Banks Lose 2 Million Customers In 2 Years</i>
	P M News (2018)	<i>Banks Lose Customers Despite CBN'S Campaign For Financial Inclusion - P.M. News</i>
	World Economic Forum (2016)	<i>The Complex Regulatory Landscape for FinTech An Uncertain Future for Small and Medium-Sized Enterprise Lending</i>
	Basel Committee on Banking Supervision (2018)	<i>Sound Practices Implications of fintech developments for banks and bank supervisors.</i>
	He et al. (2016)	<i>Virtual Currencies And Beyond.</i>
	Suleiman (2013)	Nigeria's 80 million hibernating farmers –

		Salisu Suleiman
	Klapper and Popovic (2018)	Five ways Nigeria can realize mobile technology's potential for the unbanked
	Frost & Sullivan (2018)	<i>Digital Market Overview: Nigeria</i>
Nigeria and Cryptocurrency	Tassev (2020)	<i>Nigerians Can Now Buy Bitcoin With Cash From Stores And Atms That Take Naira / Featured Bitcoin News.</i>
	IWS (2020)	<i>Africa Internet User Stats And 2020 Population By Country</i>
	Partz (2020)	<i>Nigerian Naira Is First African Fiat Currency Supported On Binance P2P.</i>
	He et al. (2016)	<i>Virtual Currencies And Beyond.</i>
	Coin Dance (2020)	<i>Coin Dance.</i>
	PwC (2015)	<i>Money Is No Object: Understanding The Evolving Cryptocurrency Market</i>
PEST Analysis	McGee et al. (2005)	<i>Strategy- Analysis and Practice</i>
	Sammut-Bonnici and Galea (2015)	PEST analysis
	Chapman (2008).	<i>PEST analysis method and examples, with free PEST template,</i>
	PESTLE Analysis (2015).	<i>What is PESTLE Analysis? A Tool for Business Analysis</i>
	Alanzi, (2018)	"Pestel Analysis", <i>Project Management.</i>
	Christensen (2015)	<i>Digital business in the digital age</i>



## 2.16 Conceptual Framework

This chapter has so far been able to present the important methodological choices made for this study, but these choices are not orchestrated into a complete research design construction that will explain how they guarantee that it addresses this dissertation's research goals. This research is a study into the background and operations of the FinTech industry in Nigeria, and largely on the factors responsible for their success and failure. The theoretical perspective stresses social interface as the source of knowledge, and this aligns with the view of the interpretivist, who argues that it is important for the researcher to understand the differences amongst humans and their role as social actors (Saunders, Lewis and Thornhill, 2014). The research design proposed for this study is the exploratory design, which is specific to verifying insights and is also conducted to study cause-and-effect relationships (Saunders, Lewis and Thornhill, 2014), which, in this study is the FinTech industry-operational sustainability.

Figure 2.16 below shows a summary of the essential plan that was used for this study. The chart shows the three separate research objectives together with the research question they back. As proposed in the chart, the first and second research objectives have already been addressed with the review of available literature. The last objective must be achieved through empirical study, paying attention to main themes identified in the literature such as financial inclusion, regulation, and infrastructure amongst others. As seen in the Figure below, the entire empirical work is built on in-depth interviews: unstructured, semi-structured, and highly structured interviews. The in-depth interviews are conducted with high profile stakeholders in the financial sector such as chief executive officers (CEO) of FinTech companies, senior managers or executives of Banks and regulatory bodies, and some FinTech users who have a good knowledge of the happenings in the FinTech industry in Nigeria. The initial interviews which are unstructured in nature are basically to get the opinions or views of the stakeholders of the industry on the current state of FinTech operations and with respect to the findings of the reviewed literature. A suggestive model is built based on these interviews, which gives a basis for the next stage of interviews: semi-structured. Highly structured interviews are lastly conducted. The purpose of the highly structured interviews is to get an indication of completeness, consistency, and utility of the constructed model.

- What are the functions and basic operations of FinTech, specifically in Nigeria?
- What are the factors responsible for the success and failures of global FinTech industry operations?
- What framework can be recommended to bring sustainability to FinTech operations in Nigeria

Address

Research objectives

Evaluate and critically review and works of literature on FinTech businesses, their functions, and their basic operations, specifically in Nigeria.

Study previous researches and identify critical factors responsible for successes and failures of the general FinTech industry.

Strategically develop an effective framework for sustainable operations in the FinTech industry in Nigeria.

explore

explore

create

Research methods

**Unstructured interviews (FinTech CEOs, Banks, and Regulatory bodies)**

Research foundation building

Investigate  
plausibility

Suggestive model

Research

**Semi-structured interviews (FinTech, Banks Regulatory bodies, Users)**

Main interviews

Further  
Research

**Highly structured interviews**

Model consistency and completeness

Propose

Propose a framework that ensures sustainable operations in the Nigerian FinTech industry

Figure 2.16: Conceptual framework (Source: Author)

## **2.17 Summary**

This chapter presented the literature review process while addressing the first and second research goals of this study: Factors for sustainable operations in the FinTech industry-a survey of Nigerian users, providers, and regulators. The differences in the definitions and investment amount as stated by various authors did not mean any complications such as terminological inconsistencies but showed the tendency to provide a wholesome outlook to the scope of FinTech and its adoption in Nigeria. As a result, a working definition was crafted to capture the summary of other definitions in partial fulfilment of the first research question. To further address the second part of the first research question -the segmentation of FinTech- both in a broad and detailed sense, was also discussed; laying emphasis on areas of great interests because of their technological disruption, rapid growth, and regulatory risk.

An ecosystem defines the regulatory environment for impact investment, and the major actors involved in the investor and enterprise support. Various definitions of an ecosystem presented several elements that comprise an ecosystem. The Nigerian ecosystem presented the major players in FinTech Nigeria with emphasis on regulation and how much impact it has on the Nigerian ecosystem.

To answer the second research question, a detailed review of available literature and previous research was done to identify global CSF for both general and FinTech ventures, and African FinTech success factors as well. FinTech adoption across countries and cities vary notably, and as such, a variety of factors was examined. Even though the fundamental building blocks for FinTech hub to thrive were summarized, FinTech adoption is seen to be as a result of a combination of several major forces

# **CHAPTER 3: RESEARCH METHODOLOGY AND DESIGN**



## **RESEARCH METHODOLOGY AND DESIGN**

### **3.1 Introduction**

This chapter explains and justifies the methodology applied in this study. It starts with the research paradigm and philosophy and then goes on to describe in detail the data collection and analysis methods used. Also discussed are ethical considerations, reliability, and validity. For natural events and phenomena, various techniques can be used in collecting information and the type of information to be collected must be considered in choosing the technique to be used.

Scientific approach is a technique that involves the relationship between the phenomena - independent of the researcher's ideas- and opinions. The theoretical part of the study is based on the content analysis and descriptive approach of past studies, which addresses economic variation. The practical study involves adopting the deductive approach to attain results and recommendations resulting from the discoveries made by the researcher through face-to-face interviews conducted. This chapter also describes the choice of subject and research problem, the general conduct of the research, the choices made for the research, the time horizon and then reflects on the validity and reliability of the research (Saunders, Lewis and Thornhill, 2009). Details of the research methodology from data collection and analysis to outcomes and recommendations will be described. Finally, ethical issues to ensure generalizability and unbiased are discussed.

### **3.2 Research Methodology, Philosophy and Paradigm**

Methodology refers to the way a researcher finds out whatever can be known. The methods begin with the theoretical framework, to gathering and analyzing data. A methodology that is faulty will likely have unacceptable conclusions, and as such, a research needs to be trustworthy and transparent on the work procedure and in the obvious methodology clarification (Collis and Hussey, 2003; Sileyew, 2019). It is also a strategy that converts epistemological and ontological principles into guidelines that reveal how a research should be carried out, and the procedures, principles and practices that govern the research (Kazdin, 1992, cited in Marczyk, DeMatteo and

Festinger, 2005; Sarantakos, 2005). There is no right or wrong methodology that can be applied to a research (Silveman, 2010). This is because some methodologies meet the objectives of a research more appropriately than others (Oppeheim, 1992; Easterby-Smith et al., 2002; Creswell, 2003; Ragab and Arisha, 2018). Several factors influence the selection of a methodology for research (Bryman, 2004). These factors comprise the research question type, the nature of phenomenon being studied, the philosophical stance of the researcher and the level of control over behavioural actions needed in the research (Collis and Hussey, 2003; Zikmund, 1984). A research onion (Figure below) was developing to outline the stages of research and to present a way of illustrating the issues that underlie the choice of methods (Saunders, Lewis and Thornhill, 2016).

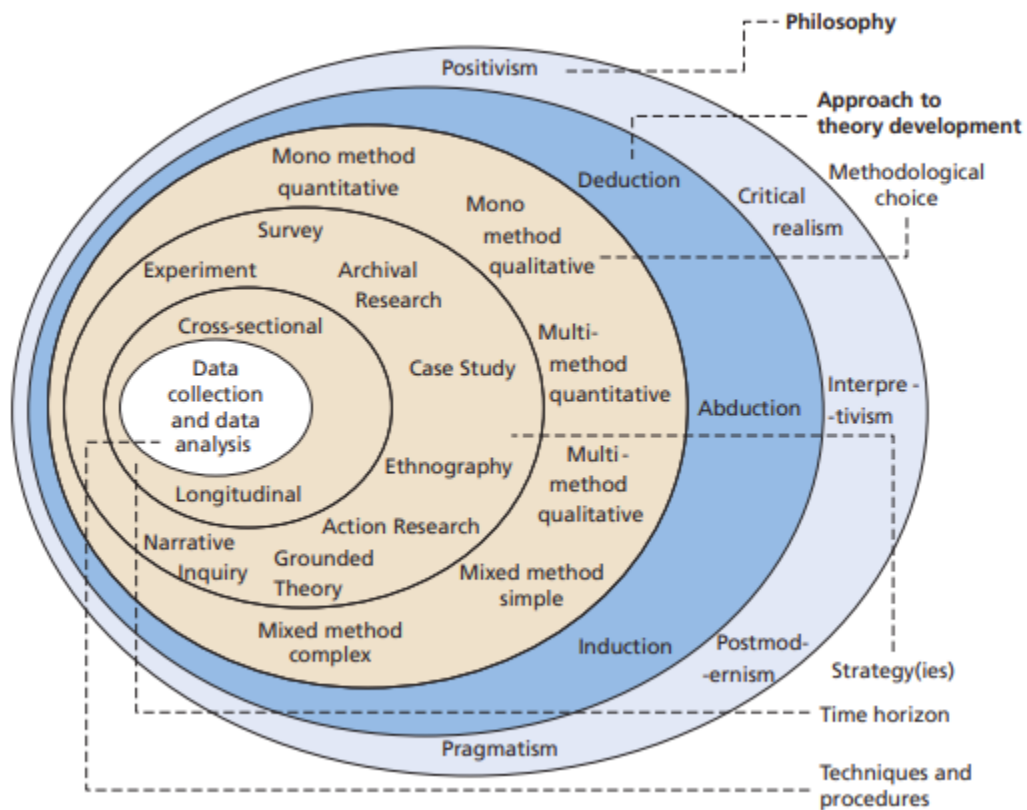


Figure 3.2.1: Research onion (Saunders, Lewis and Thornhill, 2019 p.130)

In undertaking research at this level, it is important to articulate and consider the right research paradigm and philosophical position as these have significant effects on the method in which the research is undertaken, from the design down to its conclusion. A paradigm is a 'set of basic views or beliefs, which deals with the first principles. For its holder, it epitomises a worldview that describes the nature of the universe, the person's place in it, and the array of likely relationships to that world and its parts.' (Guba and Lincoln, 1994 p. 105)

James and Vinnicombe (2002) have said that people have inherent preferences that will likely figure out our research designs while Blaike (2000) has described these characteristics as an important part of several choices that must be considered by the researcher to align these choices to the original research problem (Flowers, 2009).

### **3.2.1 Overview of Philosophical Assumption**

Research methodology has been described as the processes involved in undertaking a research (Saunders and Thornhill, 2019). This includes the philosophical and theoretical assumptions on which the research is founded, and the implications of adopting these methods (Collis and Hussey, 2003). It is important that a researcher be cautious in choosing a method that is proper for the researcher's aims and objectives. These objectives are closely correlated to the research design and philosophy. The definitions of both paradigm and philosophy specify that a research paradigm plays an important role by providing a base for the research, and so it is the researcher's responsibility to understand the philosophical principles of the research. This includes applying statements that deal with such as the means where the research for facts is recognized, and how it is reflected in the accomplishment of the research aims and objectives (Collis and Hussey, 2003).

Understanding the 'how' and 'why' actions take place in nature of world research should be understood. (Burrell and Morgan, 1979). Burrell and Morgan (1979) and Chua (1986) are of the view that certain assumptions are provable with respect to the nature of social science and society. They both agreed that several social science and accounting researchers utilize implicit and explicit assumptions such as those that relate to human nature and methodology,

epistemology and ontology, and the applied investigation methods into the nature of social science. There are a few variations to the philosophical assumptions in research: Collins (1998), as well as Guba and Lincoln (1994), stated that epistemology, ontology, and axiology are the three assumptions that are within research philosophy, while Rehman and Alharthi (2016) defined paradigm as a theoretical framework and basic belief with assumptions classified under ontology, epistemology, methodology and methods, the most common classification was done by Patton (2002), who simplified it by giving the descriptions below:

- Ontology: What we believe about reality
- Epistemology: How do we know what we now know.
- Axiology: What is the truth we believe
- Methodology: How do we go about finding out.

These assumptions represent different aspects of the objective and subjective parameters. A diagram analyzing the assumptions as they concern the nature of social sciences is shown below:

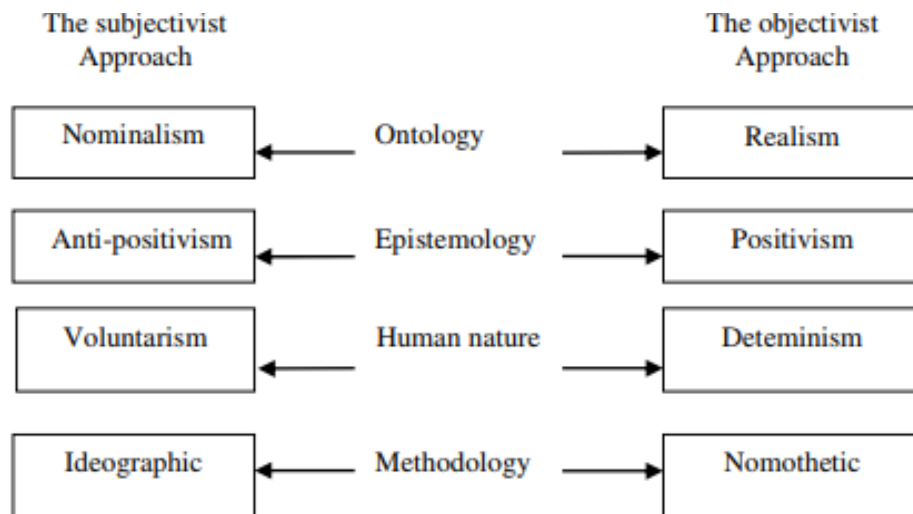


Figure 3.2.2: The subjective-objective dimension (Burrell and Morgan, 1998)

### *3.2.1.1 Ontology*

Ontology was defined by Saunders, Lewis, and Thornhill (2019) as assumptions about the nature of reality. This is always associated with the category of the reality that is to be assessed; it explores the relationship between the topic under investigation and the researcher (Hopper & Powell, 1985). A basic ontological question faced by social scientists is whether the reality that is to be investigated is external to the individual and imposing itself on the individual's consciousness from the outside, or if it's a product of the individual's consciousness. This argument circles around the makeup of reality, that is, if it comprises of concrete, rigid and averagely irreversible structures or if it is an outcome of individual realization (Burrell & Morgan, 1998, Crotty, 1998).

Richards (2003, p. 33) refers to ontology as "the nature of our beliefs about reality". Blaikie (1993, p. 6) acknowledges the definition of ontology as the study of being, but in some cases, he defined ontology as 'claim or assumption that a specific approach to a social enquiry makes the nature of social reality' (p. 6). Meanwhile, Crotty (1998) has argued that such definitions do not represent ontology in its philosophical sense but corresponds to 'theoretical perspective' because it refers to how we view the world. He further adds that 'ontology' is best reserved for occasions where we need to talk about 'being'. Patton (2002 p.134) expresses it as "A singular, verifiable reality and truth (or)...socially constructed multiple realities. Generally, researchers have the assumptions (occasionally implied) about reality, what can be made known about it and how it occurs. Ontology leads researchers to questions that probe what kind of reality exists.

### *3.2.1.2 Epistemology*

In association with ontology is epistemology, an assumption about the grounds of knowledge - how to understand this world and ability to communicate the knowledge to humans (Burrell and Morgan, 1979; Cooksey and McDonald, 2011; Saunders, Lewis and Thornhill, 2019). Epistemology is derived from two Greek words: 'episteme, which means 'knowledge 'or 'science', and logos, which means 'study', 'theory', 'information' or 'account' (Johnson and Duberley, 2000. p. 2) and is concerned with the nature and forms of knowledge, how it can be communicated to

others and how it can be acquired (Cohen et al., 2007 p.7). Epistemology leads the researcher to debatable questions of the desirability and possibility of subjectivity, objectivity, validity and generalizability (Patton, 2002, p.134).

Epistemology has been defined by Guba and Lincoln (1994) as the nature of the relationship between what can be known and the knower and another definition of epistemology is 'the theory of knowledge embedded in the theoretical perspective and methodology' (Crotty, 1998. p. 3). Sticking to ontological beliefs system (unequivocally or indirectly) leads one to epistemological assumption. Consequently, if a singular certifiable truth is accepted "then the posture of the knower must be one of objective detachment or value freedom in order to be able to discover 'how things really are' and 'how things really work'" (Guba and Lincoln, 1994 p. 108).

Various epistemological facets are recognized in social science literature. They include Subjectivism, objectivism, and constructionism (Crotty, 1998), positivism, and anti-positivism (Burrell and Morgan, 1979), insight, and positivism (Otley and Berry, 1994).

Bryman (2004) agreed that objectivism requires that social phenomena exist independently of other actors; and those social phenomena categories that are adopted by humans in everyday language use, also exist independently from the actors. To put it in other words, Objectivist epistemology is instituted on the notion that knowledge exists independently of any consciousness (Crotty, 1998; Mark, Philip and Adrian, 2007), Contrastingly, subjectivist is based on the notion that knowledge is imposed on an object by the subject (Crotty, 1998). Constructionists state that social phenomena and its implied meaning is not just regularly achieved by the social actors but is always in a constant state of evaluation (Bryman, 2004, p. 17). The epistemology of constructionists requires that no objective truth be exposed: the meaning of truth surfaces when humans engage with the reality in their world. In other words, constructivist epistemology disagrees with objectivists that knowledge exists, and subjectivists that knowledge is imposed, but that knowledge is created (Crotty, 1998).

### 3.2.1.3 Axiology

After Guba and Lincoln (1994) identified the three basic significant features of a research paradigm: epistemology, ontology and methodology, Heron and Reason (1997 p. 287) argued that another paradigm, axiology, that involves inquiry must also be considered.

This assumption is basically concerned with the role of ethics and values within a research process. It incorporates questions about how researchers deal with both our values and those of the research participants (Finnis, 1980; Saunders *et al*, 2016; Kivunja and Kuyini, 2017; Saunders, Lewis and Thornhill, 2019). Heron (1996) stated that our values are the controlling purpose for all human actions. He went ahead to point out that researchers establish axiological skills by the ability to maintain their values as a foundation for making judgements on the research being conducted and how they go about it. The choice of one topic over another indicates that the researcher thinks of the chosen topic as more important than the other. The choice of philosophy reflects the researcher's values as is the choice of data collection methods. Put simply, axiology tends to answer the question of ethics and ethical behavior.

### 3.2.1.4 Methodology

Methodology is a broad term that has been used to refer to research methods, design procedures and approaches applied in an investigation that is well articulated to find out information (Keeves, 1997; Kivunja and Kuyini, 2017). Processes such as data gathering, instruments used, participants, and data analysis are all parts of the vast field of methodology.

Methodology has been defined as an articulated, theoretical knowledgeable approach to the generation of data (Ellen, 1984 p. 9). It has also been referred to as the critical analysis and study of data production methods. It is the plan of action, strategy, design or process that directs the researcher in deciding on a choice of research methods (Crotty, 1998 p.3; Grix, 2004 p. 32).

In summary, methodology articulates the flow and logic of organized procedures followed in carrying out a research to acquire knowledge about the research problem (Kivunja and Kuyini, 2017). It also includes, but is not limited to, the assumptions made, limitations encountered and

how they were minimized or mitigated, and focuses on how we come to acquire knowledge about the world (Moreno, 1974; Kivunja and Kuyini, 2017).

### 3.2.2 Research Paradigm

Research paradigm is defined by the Oxford Dictionary as "a world view underlying the theories and methodology of a particular scientific subject" Paradigms are rarely found in most research and are sometimes given conflicting definitions. A paradigm is also a means of defining the world view by philosophical assumptions about the nature of social reality (Ontology), ways of knowing (Epistemology), and its ethics and value system (Axiology) (Patton, 2002). The differences between the two philosophies can be more formally addressed by considering their epistemology and ontology stances. While some researchers prefer discussing the interpretive framework in terms of epistemology and ontology, others refer it to research methodologies (Neuman, 2000), or 'knowledge claims' (Creswell, 2003) rather than referring to paradigms. Another prominent definition includes three major elements: a methodology, criteria for validity and a belief about the nature of knowledge. (Mac Naughton, Rolfe and Siraj-Blatchford, 2001; Mackenzie and Knipe, 2006 p. 32).

Several paradigms are explained in literature, and they include positivist, constructivist, interpretivists, transformative, emancipatory, deconstructive, critical and pragmatists (Mackenzie and Knipe, 2006). Flowers (2009) acknowledged three major paradigms, with the classification used to differentiate their key components, they are positivists, interpretivists and realists. These paradigms are not only common in management research but also effectively form the basis on which other paradigms are derived. While Easterby-Smith et al. (2002) and Collis & Hussey (2003) all identified two major paradigms as positivism and interpretivism, Saunders *et al* (2016) adopted Burrell and Morgan's (1982) classification into four distinct paradigm classes. In as much as the classification was contentious, it has been highly influential in terms of scholarship organization. The major dispute in their classification was that it was incommensurable: the claim that the four classes contained mutually incompatible assumptions and as such cannot be combined. The paradigms- said to be rival paradigms of organizational analysis, are combined in



an objectivist-subjectivist continuum and a regulation-radical change continuum and are represented below in a 2-by-2 matrix.

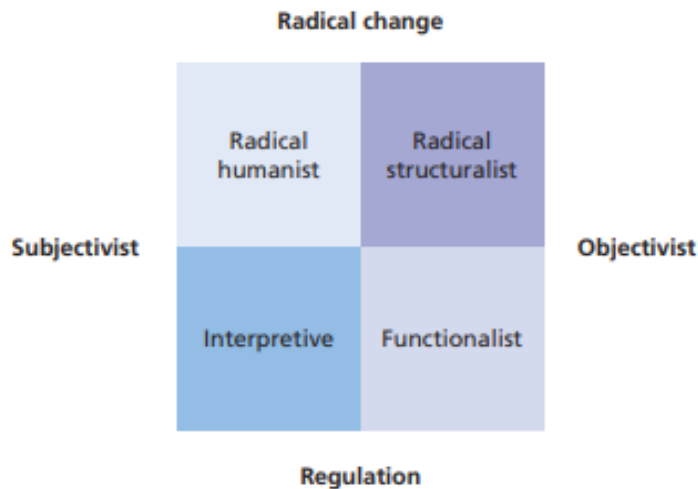


Figure 3.2.3: Four paradigms of social theory analysis (Saunders, Lewis and Thornhill, 2019).

Research philosophies have been recognized as the background for effective research design, and failure to abide by such philosophical issues can greatly impact negatively on the quality of the research. In conducting re determining which amongst theory and data should come first governs the philosophy of the research: positivism or interpretivism. Three major reasons listed below were highlighted to show the importance of philosophical issues in research. (Kulatunga et al., 2006; Easterby-Smith et al., 2002):

- i. Research philosophies help in clarifying the research design
- ii. The researcher should be able to recognize the designs that will work, and which will not.
- iii. Having knowledge about the research philosophy will aid in identifying and creating designs that are outside of the researcher's previous experience.

### 3.2.2.1 Positivism

For a long time, social science research was dominated by positivism until the recent development of critical social science. Positivism believes that reality is stable, observable and describable from an object's point of view without interfering with the studied phenomena (Levin, 1991; Carson et al., 2001). Positivism applies empirical research and directed by several guidelines about the social world and how it is meant to be investigated, and as such the analysis of the results is likely to be quantifiable (Lee, 1991; Wilson, 2010). It is based on facts and rationally connected to pure science laws in a bid to satisfy four requirements: logical consistency, falsifiability, survival, and relative explanatory power (Lee, 1991). Positivism is basically based on a deductive approach, which is a theory-testing process that begins with testing hypotheses from existing theories against any collected data to see if the theory applies to specific occasions. Deductive approaches are objective and often related to quantitative research methods (Hyde, 2000; Pathirage et al., 2008; Young, 2007). Positivism is therefore said to be a 'methodological and systematic process' (Koch and Harrington, 1998; Walker, 2005) that stresses objectivity, rationality, prediction and control (Streubert and Carpenter, 1999, p. 7).

According to the French Philosopher August Comte, reason and observation are the best ways to comprehend human behavior, and that true knowledge is founded on experience and then obtained by experiment and observation. In the ontological view, knowledge is objective and quantifiable using those independent properties of the researcher. Positivism is basically concerned with finding out the truth and presenting them empirically (Henning, Van Rensburg and smit, 2004, p. 17). It maintains that scientific knowledge comprises of facts and its ontology reflects the reality as being independent of social construction. In the case where the study comprises of an unchanging and stable reality, the researcher adopts the 'objectivist's perspective, while its epistemology is based on the view that knowledge is hard, real and acquirable.

The long-term influence over educational research and dominance of positivism was challenged by critics from other traditions - interpretive constructionism and critical postmodernism – because it lacks subjectivity in its interpretation of social reality. They added that objectivity needed to be replaced by subjectivity in any scientific inquiry process (Antwi and Hamza, 2015).

### 3.2.2.2 Interpretivism

Wilhelm Dilthey and other German philosophers' study of interpretive understanding known as hermeneutics, together with Edmund Husserl's philosophy of phenomenology brought about the interpretivist paradigm (Mertens, 2005 P12 citing Eichelberger, 1989). The interpretivist does not begin with a theory but instead generate a theory or pattern of meanings through the process. The interpretivist relies more on the participant's view of the studied matter and acknowledges the effects of the research on their background and experiences. (Creswell 2003, p 18). Interpretivism is a mainly subjective and qualitative phenomenon and has an inductive approach, in which the researcher is actively involved in the research via high levels of participation and/or interaction (Wilson, 2010). The inductive approach is a process based on empirical data collected in a scenario where there are few or no theoretical pre-conceptions, which leads to theory building. This approach starts with observations and seeking to establish generalizations on the investigated phenomena. Interpretivism is a basic approach to research that consists of philosophical, hermeneutics, phenomenological, and constructionists' perspectives. This philosophy stresses the scrutinization of text to discover entrenched meanings, to decipher the languages and symbols people use to construct and define social practices in a bid to understand peoples' behaviors and actions. Interpretivists capitalize on concepts that the positivists ignore such as 'freedom of choice', 'consciousness', and meanings (Checkland & Scholes, 1990; Hussey & Hussey, 1997; Newman, 1994).

Since the interpretivists believe that reality consists of humans' subjective experience of the external world, they are likely to adopt an epistemology that is inter-subjective and ontology that reality is socially constructed. Willis (1997) said interpretivists are anti-foundationalists that believe that there exists no single correct method or route to knowledge, and in the same vein, Walsham (1993) also said that the interpretive tradition has no 'correct' and 'incorrect' theories but should rather be judged by how 'interesting' they seem to the researcher and others involved in the research. Interpretivism attempts to comprehend the phenomena through the meanings that are attached to it by the people (Deetz, 1996), by putting analysis in context (Reeves and Hedberg, 2003. p 32). In interpretivism, dependent and independent variables are not predefined, the focus is rather on the complexity of human sense as the situation arises (Kaplan and Maxwell, 1994).

### Philosophical Positioning.

Figure 3.2.4 shows a matrix recommended by Becker et al., (2004) to place interpretivism, realism and positivist according to alternative epistemological and ontological choices. Interpretivism and positivism are greatly opposites relating to both epistemology and ontology. While positivism presumes the reality of an objective world and human's capability to comprehend the world objectively in the knowledge building process, interpretivism is a radical deviation from such objectivity. The third one, critical realism, shares positivism's belief about the existence of an objective world separate from our capacity to comprehend it.

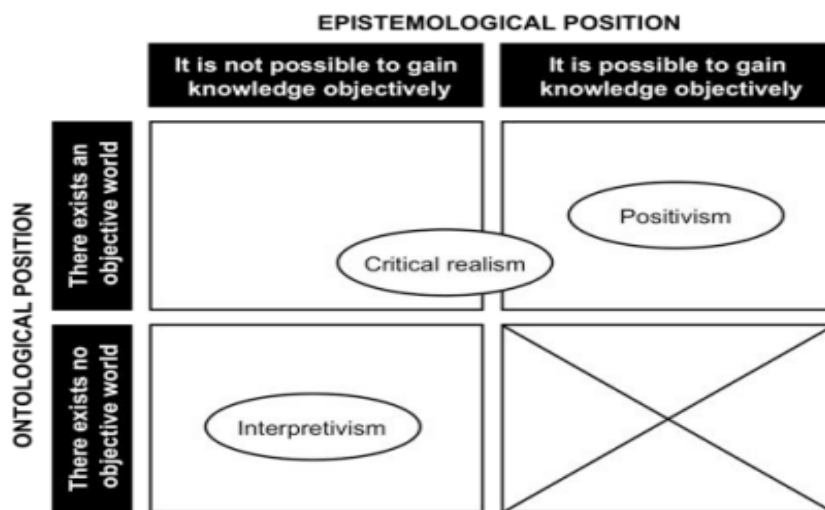


Figure 3.2.4: Philosophical positions (Becker et al, 2004 p. 344)

Following epistemological stances, Positivism is defined by the position that values and facts differ, and scientific knowledge comprises of only facts (Archer, 1988). While interpretivism is where values and facts are intertwined and are both involved in scientific knowledge. With respect to ontology, Archer (1988) differentiates between 'internal realism' which sees reality-for-us as an intersubjective creation of common human cognitive apparatus, and 'external realism' that considers reality as existing autonomously of our creation of it. The major differences between interpretivism and positivism are shown below (Pizam & Mansfel, 2009).

<b>Assumptions</b>	<b>Positivism</b>	<b>Interpretivism</b>
Nature of reality	Objective, tangible, single	Socially constructed, multiple
Goal of research	Explanation, strong prediction	Understanding, weak prediction
Focus of interest	What is general, average and representative	What is specific, unique, and deviant
Knowledge generated	Laws Absolute (time, context, and value free)	Meanings Relative (time, context, culture, value bound)
Subject/Researcher relationship	Rigid separation	Interactive, cooperative, participative
Desired information	How many people think and do a specific thing, or have a specific problem	What some people think and do, what kind of problems they are confronted with, and how they deal with them

Table 3: Differences between Positivism and Interpretivism (Pizam & Mansfeld, 2009)

According to Blaike (1993), Positivism involves ontology of an ordered universe that is made up of discrete, atomistic and observable events. (p. 94), and interpretivism involves ontology where social reality is viewed as the outcome of processes by which the social actors collectively negotiate the meanings for situations and actions (p. 96). The table below shows the distinct characteristics of interpretivism, as referenced in this study. It is classified into the purpose of research, Ontology (nature of research), Epistemology (nature of knowledge and relationship between the researcher and the researched), and the applied methodology (Cantrell, 2001).

Feature	Description
Purpose of research	Understand and interpret students' and teachers' perspectives on the factors that could impact the successful use of elearning and face-to-face instructional approaches in a manner that they complement each other.
Ontology	<ul style="list-style-type: none"> <li>➤ There are multiple realities.</li> <li>➤ Reality can be explored, and constructed through human interactions, and meaningful actions.</li> <li>➤ Discover how people make sense of their social worlds in the natural setting by means of daily routines, conversations and writings while interacting with others around them. These writings could be text and visual pictures.</li> <li>➤ Many social realities exist due to varying human experience, including people's knowledge, views, interpretations and experiences.</li> </ul>
Epistemology	<ul style="list-style-type: none"> <li>➤ Events are understood through the mental processes of interpretation that is influenced by interaction with social contexts.</li> <li>➤ Those active in the research process socially construct knowledge by experiencing the real life or natural settings.</li> <li>➤ Inquirer and the inquired-into are interlocked in an interactive process of talking and listening, reading and writing.</li> <li>➤ More personal, interactive mode of data collection.</li> </ul>
Methodology	<ul style="list-style-type: none"> <li>➤ Processes of data collected by text messages, interviews, and reflective sessions;</li> <li>➤ Research is a product of the values of the researcher.</li> </ul>

Table 4: Characteristics of Interpretivism (Cantrell, 2001).

### 3.2.3 Researchers' Choice

Ultimately, how the knowledge is obtained has a significant effect on the research methodology and data collection methods (Creswell & Clark, 2007, Ryan, Scapens & Theobald, 2002). A few considerations that informed the research paradigm included the research objectives, application of the most appropriate perspective, and the type of study. The research objectives included reviewing and evaluating FinTech sustainability operations in Nigeria, taking an industry-level perspective. For the type of study, being a DBA and not a Ph.D., the researcher seeks to both generate a workable framework for sustainable FinTech operation and also to add to the body of knowledge.

According to this combination, this research was taken from the **interpretivist** paradigm. Interpretive researchers believe that reality consists of people's subjective worldly experiences and as such, they may likely adopt inter-subjective ontological and epistemology belief that reality is socially formed. The choice of the interpretivist approach (Saunders et al., 2009) by the researcher was based on comparison with other approaches and concluding that this best supports the aim of the study and is closely aligned to the researcher's personal and professional perspectives. It is also a reflection of the DBA research previously described. It is important that the meanings, motives, reasons, and other subjective experiences that are timed and contextualized be understood (Hudson and Ozanne, 1988; Neuman, 2000).

Finally, as the interpretivist approach adopted for this research is buttressed by utility rather than the dogmatic application of any specific research philosophy, it is pertinent that epistemological and ontological positions are applied for justification: set to support the stated aims of this research while remaining aligned with the researcher's beliefs and experience. As the researcher seeks to understand the factors responsible for the continuous success of the FinTech industry in Nigeria, and in doing so consider the industry as the unit of study, this research is done from an ontological perspective of subjectivity and its interpretive using case studies of FinTech companies. As is typical of qualitative research, this study does not seek generalizability, this study provides an in-depth assessment of the FinTech industry operation, its threats and opportunities, and its future in Nigeria.

From this perspective, the research is based on the choices made for the industry and the critical success factors are dependent on the social actors. Success factors are viewed as being inseparable from the contributions of the social actors and cannot exist on their own. This study aims to examine the factors that have been responsible for FinTech success in Nigeria and to also explore the possibilities of long-term sustenance of the growth and success of the industry based on interpretations of interviews with the industry's major role players, hence subjective. This is of significance in considering the continuous growth and sustenance of the industry. These factors can be measured as objective entities such as the number of factors to be considered, the number of operational companies, the country's demographics; but it should not be assessed by only such criteria because the sustenance of such industries normally depends on more than just those entities.

### 3.3 Research Approach

The approach taken for research is dependent on the theory assumption and clarity at the beginning of the research. This knowledge will determine the appropriate approach to be taken for the study. Two basic approaches are discussed here: Deductive and Inductive approaches. The deductive approach examines the validity of assumptions or theories. When there is a wealth of literature where a theoretical framework and hypothesis can be defined from, a deductive approach is best used for such research. Creswell and Plano Clark (2007) described it as a 'top-down' approach; while the inductive approach is the bottom-up type of research that uses participants' views to build broader themes and eventually generate a theory that interconnects the themes (p.23). The inductive approach is more appropriate for new research that lacks sufficient literature and is open to debate and works by generating data and then analyzing the theoretical themes as suggested by the data. It also targets to contribute to the development of new generalizations and theories (Bryman and Bell, 2015; Azungah, 2018).

The approach to ensuring rigor, objectivity, and ethical diligence depends on whether the study is qualitative or quantitative. For years, scholars have argued that the principal distinction between qualitative and quantitative research is that they do not share the

same epistemology. Rather than elaborate on this line of thinking, it is far better to understand that key distinctions between the two can be found within both method and methodology. Method refers to how data is collected, and methodology refers to the identification and utilization of the best approach for addressing a theoretical or

practical problem (Kaplan, 1964). In short, as has been said elsewhere- method is about "how to" and methodology is about "why to" collect data a certain way. Both are pertinent to the research design. In designing a study, all social science researchers begin with a set of questions about a social problem. Subsequently, they simultaneously consider constructs and theories that can adequately facilitate how the problem is conceptually understood while also thinking about the practical dimensions of collecting data. Some basic questions a researcher will ask, for example, are as follows:



- What will their responses help me to understand about the selected phenomenon under investigation?
- How will I gain access to and recruit participants?
- How will participants respond to my questions?
- Do my research questions reflect what I am seeking to conceptually understand?

Each of these questions is very important for beginning an investigation.

Two major types of analysis are often associated with the research approach; qualitative- often associated with inductive. and quantitative- often associated with deductive.

### 3.3.1 Deductive Approach

The deductive approach, also known as the testing theory, involves a rigorous test that results in the development of a theory. In natural science research, where laws present the foundation of explanation, permit the expectation of phenomena, predict and control the phenomena, deductive approach is widely used (Collis and Hussey, 2003; Saunders, Lewis and Thornhill, 2019).

Five progressive stages were listed through which deductive research progresses (Robson, 2002):

1. Deduce the hypothesis from the theory (a testable proposal on the connection between two or more variables).
2. State the hypothesis in operational terms (to indicate how the variables should be measured). This should offer a connection between two particular variables).
3. Test the hypothesis.
4. Probe the result of the inquiry (this is to confirm the theory or show any need for modification).
5. Confirm and act on any modification need, in connection to the finding, and then repeating the whole cycle for theory verification.

Several important steps characterize the deductive process: First, a brief explanation to explain the relationship between the variables is offered before a hypothesis can be developed based on

the outcome. To test this hypothesis, and data is collected in a quantitative approach and to ensure reliability, highly structured methodology is used, and the researcher is also expected to be independent of what is being observed (Gill and Johnson, 2002).

### 3.3.2 Inductive Approach

While the deductive approach involves a prior theoretical position, the inductive approach is based on developing a theory after data collection and analysis. Also called building theory, the inductive approach involves the collection of data from observations that relevant to the research area (Merton, 1968; Saunders, Lewis and Thornhill, 2019). The theories produced are also called *post factum* theory or *ex post facto* theorizing because they are produced after observations were made (Merton, 1968).

The inductive theory starts with a few assumptions and then a broad orienting concept. As data is gathered and analyzed, a theory that is specific in an area is developed from the ground up. Gradually, concepts and empirical generalizations mature and emerge, followed by relationships that become visible. The knowledge weaved together from several studies develop into a more extended abstract theory. While some studies expatiate on a theory or identify an incomplete theory to add on to, some studies evaluate the theories and others attempt to compare two or more theories to see which one explains an event better (Neuman, 2014).

The supporters of the inductive approach will always criticize the deductive approach because of its likelihood to be a rigid methodology that does not allow for alternative explanations of its findings. Inductive research is also more concerned with the context in which the events take place. As such, it is more appropriate to use a small subject sample than the larger sample as obtainable under a deductive approach. For this group of researchers, working with qualitative data is preferred as it allows the use of a variety of methods to collect data and establish different views of the study (Easterby-Smith et al. 2008; Saunders, Lewis and Thornhill, 2012).

### **3.3.3 Differences and similarities of inductive and deductive approaches.**

The beginning of every research is expected to be questions about the problem. Theories and constructs that can effectively simplify how the problem can be abstractly understood are considered simultaneously with a practical scope of data collection. Three major differences between the inductive and deductive approaches, as maintained by Stake (1995) are the distinction between:

1. Understanding and explanation as to the purpose of enquiry.
2. The researcher's personal and impersonal role.
3. The knowledge constructed and knowledge discovered.

Meanwhile, Mack (2005) has a more simplified list of differences between the research approaches as the distinction between:

1. Their analytical objectives
2. Types of data collection instruments used
3. Types of questions asked.
4. Flexibility of study design
5. Forms of data produced.

### **3.3.4 Researcher's Choice**

The research approach in this study will be the inductive approach where the meaning or facts are meant to emerge from data collected, to identify themes and patterns. The inductive approach is usually known as a 'bottom-up' approach.

As there is no theory or hypothesis in place at this early stage, this research will begin with the collection of relevant data from interviews and surveys with all the classes of FinTech operators, with an aim to generating meanings, and identifying common patterns and themes that will help in building a theory or hypothesis. The choice of inductive over deductive approach for this study is the tendency of the deductive approach to construct a rigid methodology that does not allow for an alternative explanation of the research area. Where alternative theories are suggested

by deduction, they will likely be within the limit that has been set by highly structured research design. Inductive approach research is also more likely to be concerned with the context in which research is undertaken. As such, a small study sample is likely to be more appropriate than a large sample size as with the deductive approach.

Inductive approach, which is aligned with the interpretivist theory is generally associated with qualitative methods of data collection and analysis which shall also be discussed. When presenting these approaches in terms of research philosophies, deduction owes it more to positivism while induction to interpretivism, even though such labelling is likely to mislead (Saunders, Lewis and Thornhill, 2019).

### **3.4 Research Design**

Different researchers have given different meanings to research design. While others consider it to be the choice between qualitative and quantitative methods, others believe it refers to the choice of methods of data collection and analysis. This research will view research design as a general plan on what should be done to answer the research questions stated (Saunders, Lewis and Thornhill, 2012). The significant elements of this design will include the research strategies and methods associated with data collection and analysis. Three basic research design types exist: explanatory, exploratory, and descriptive (Cooper and Schindler, 2006).

#### **3.4.1 Exploratory Research**

This design aims at identifying major issues and major variables of a novel phenomenon, assess the possibility of an all-round extensive study, or to pick the most suited method that can be used in subsequent research or study (Saunders, Lewis and Thornhill, 2019). An exploratory design is a broad type of research that does not typically offer definite solutions to specific research questions. Three basic ways of carrying out exploratory research are:

- Literature search

- Interviews with experts in the subject
- Conducting focus group interviews.

Exploratory research is flexible, and in conducting it, there must be the willingness to adapt to change of direction with the appearance of new data and hence, new insights. Adams and Schvaneveldt (1991) did however buttressed the point by stating that the flexibility does not mean absence of direction to the enquiry, but that the initially broad focus is becoming progressively narrower with the progress of the research (Robson, 2002 p. 59).

### **3.4.2 Descriptive Research**

Descriptive research is purposed to portray a precise profile of people, situations of events. This research can either be a forerunner to, or an extension to a piece of exploratory research, or, most often, a piece of explanatory research. Descriptive research requires that a clear picture of the phenomena to be used in data collection is explicit.

### **3.4.3 Explanatory Research**

Explanatory research is known as the study that establishes a causal relationship among variables. Another way of putting it is that it means studying a condition in order to describe the relationship between variables (Saunders. Lewis and Thornhill, 2012).

### **3.4.4 Researcher's choice**

The design proposed for this study is the exploratory research method, which is also known as formulative research. This research aims at developing a working hypothesis and considering the scope of the issues being dealt with, a flexible study approach is the most appropriate in providing the opportunity to obtain wide-ranged responses from these FinTech operators and transforming them to be more universal. These participants are likely to have different and

unique reasons responsible for their success/failure in the industry which will be individually explored. Exploratory research is specific to verifying insights and is also conducted to study cause-and-effect relationships (Saunders, Lewis and Thornhill, 2014), which in this study is the FinTech Industry-success/failure and sustainability.

It is also expected that the approach chosen for this research, which adopts an inductive approach, will provide important contextual or background information for this study, through flexible in-depth interviews.

### **3.5 Time Horizon**

Another significant part of this research is to determine if the research is meant to be a "snapshot" taken at a specific time or if it should be similar to a series of snapshots (Saunders, et al., 2007, 2012 p.190; Bryman, 2012). Two types of horizons are named as in the research onion above: cross-sectional (Snapshot horizon) and longitudinal (The diary outlook horizon).

**A longitudinal study** involves a data collection repetition over an extended period, tracking the variations in variables over time (Saunders, 2016; Blumberg et al., 2011 p. 495; Saunders, Lewis and Thornhill, 2019). The advantage of using this study type is its capacity to research on changes and development and is used where a significant factor of the research is examining variation over time (Goddard & Melville, 2004).

**A cross-sectional study** is an established one where the data is required to be collected only once and shows a snapshot of one moment in time (Saunders, 2016 p. 200; Blumberg et al., 2011 p. 490).

This study method basically, employs the survey strategy that seeks to describe the occurrence of a phenomenon or to describe how factors can be related in different organizations (Bryman and Bell, 2015 p. 62; Saunders, Lewis and Thornhill, 2019). This research qualifies as a cross-sectional study.

### **3.6 Research Methods**

Research methods can be quite a broad term. While data collection and analysis represent the basics of research, a range of other elements within the scope of the research need to be addressed. Research methods refer to specific activities that are designed to generate and analyze data (Dudovskiy, 2018). In simpler terms, it can be explained to be methods that are used by a researcher during the study of a research problem (Kothari, 2004).

#### **3.6.1 Data collection methods**

In research, the most important choice to be made by a researcher is based on the differentiation between quantitative and qualitative data. A third method, which is the combination of the two methods is known as mixed methods. There is a debate among researchers as to the best method to use in conducting research and gathering data. These methods can be used to address the same question using different methods, they are mutually exclusive. The choice of research approach depends basically on ensuring objectivity, rigor, and ethical diligence of the study. It has been argued by scholars that the main distinction between qualitative and quantitative approaches is that they have different epistemology (Jackson II, Drummond and Camara, 2007). While Onwuegbuzie and Leech (2005) proposed that instructors of qualitative and quantitative research often view themselves as competitors, and went on to argue that this division has promoted 'uni-researchers' which has made researchers to restricting themselves to exclusively using qualitative or quantitative research methods (p.268), Jackson II, Drummond and Camara (2007) have tried to explain the key distinctions between the two approaches which can be found within both methodology and method rather than the epistemology as earlier mentioned. 'Method' is the 'how to' of data collection while 'methodology' refers to 'why to' or identifying and utilizing the best approach for tackling a practical or theoretical problem (Kaplan, 1964; Jackson II, Drummond and Camara, 2007). Both approaches are relevant to the research design.

Despite this, qualitative methods are considerably more prominent nowadays than quantitative methods, it is pertinent to remember that both methods are useful, and it was inappropriate to put qualitative methods ahead of quantitative methods (Glaser and Strauss, 1967; Cropley, 2019).

Glaser and Strauss (1967) pointed out in one of their famous write-ups that each form of data is valuable for both generation and verification of theory (p. 17). This argument was still confirmed valid thirty years later by Strauss and Corbyn (1998) by drawing the attention of researchers to the increasing use of research designs that involved a mixture of quantitative and qualitative methods. Miles & Huber (1994, p. 40) quoted Donald Campbell and Fred Kerlinger saying: "*All research ultimately has a qualitative grounding*" and "*There is no such thing as qualitative data. Everything is either 1 or 0*", respectively.

### 1. Qualitative research method

There are several definitions of qualitative analysis: while some emphasize focus and purpose, others highlight epistemological bearing (Merriam, 2009). This type of research usually involves the 'what, how, and why' questions that will require the collection of data which is termed qualitative to address the questions. This research is concerned basically with subjective assessments of opinions, attitudes, and behaviour, and as such, the outcome is a function of the researcher's impressions and insights. (Kothari, 2004). This method is also defined by the methods used for data collection and analysis. The data obtained are expected to be the result of in-depth strategies. Interview, participants' observations, document analysis, focus groups, and in-depth interviews are the methods used for the collection and analysis of data (Kothari, 2004 p. 5; Yilmaz, 2013 p. 315). Open-ended questions or techniques such as projective techniques, framing and mapping exercises may also be used by the researcher (Barnham, 2015).

Following the rules agreed by members of the qualitative research community, Shank (2002) defined qualitative research as "a form of systematic empirical inquiry into meaning" (p.5). This was also in agreement with the definition by Dezin and Lincoln (2000) who claimed that qualitative research involves an interpretive and naturalistic approach (p. 3). Saunders, Lewis, and Thornhill (2016) further elaborated on the definition of qualitative methods pointing out that the method studies participants' meanings and their relationships using various data collection methods and analytical processes, to develop a conceptual framework and theoretical input. Figure 3.6.1 below shows an outline of the main steps in a qualitative research.



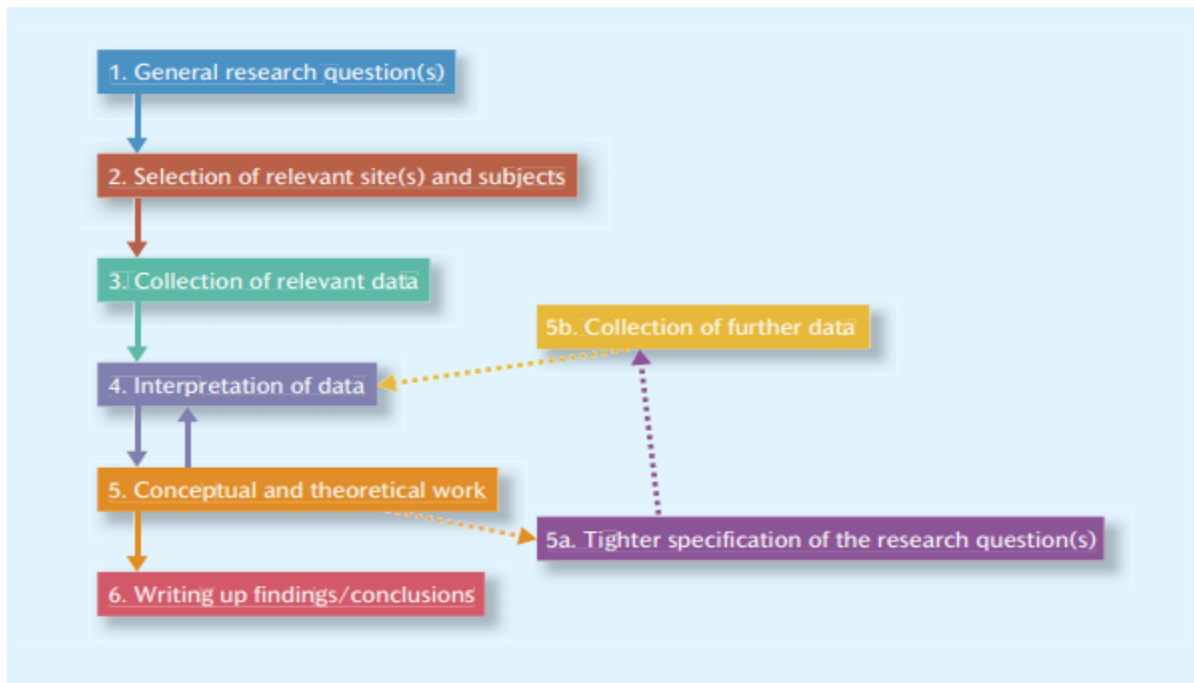


Figure 3.6.1: Steps in qualitative research (Bryman, 2012 p.384)

A qualitative research method is characterized by methodological variations and yet remains a vital method, regardless of the methods deployed to validate methodological vigour and theoretical contributions (Bansal and Corley, 2011; Saunders, Lewis and Thornhill, 2016). Qualitative research involves the use of non-standardized data collection methods where the procedures and questions are likely to alter and/or emerge during the naturalistic and interactive research process. For successful research, the researcher not only needs to access the participants but also needs to create a rapport and show sensitivity to gaining intellectual access to their data (Kyngäs, 2019).

## 2. Quantitative research method.

Quantitative research makes use of mathematical statistics and methods for analysis, resulting in numerical outcomes that are considered more objective. This research is mainly concerned with 'investigating how and why phenomena vary', which is different from the 'how and 'why' questions in qualitative methods (Tavakol & Sanders, 2014). In the same line of argument as Bryman (2012 p.160) qualification of the aspects of life should not be taken as the only reason that distinguishes this method from the qualitative method. Its ontological and epistemological

position suggests that there is more to it than just numbers. quantitative research should not also be commonly associated with positivism, especially when used with programmed and highly structured data collection methods (Saunders, Lewis and Thornhill, 2016). Quantitative methods also examine the relationships between variables that are numerically measured and analyzed using a range of graphical and statistical methods. Data is also collected in a standard manner and as such, it is vital to ensure clear and standard expression of the questions being asked. Kothari (2004) further classified this method into the inferential, simulation, and experimental approaches. Unlike qualitative research where the researcher is closely involved, quantitative researchers are known to be independent of participants or respondents (Saunders, Lewis and Thornhill, 2016 p.166; Kyngäs, 2019).



Figure 3.6.2: The process of quantitative research (Bryman, 2012 p. 161)

The Figure above outlines the basic steps in a quantitative research. Even though it is rarely found in this linear form, it represents a starting point for getting grips with the main elements of the research method and their in-between links.

Quantitative research can either use single data collection and a corresponding qualitative analytical procedure (mono method qualitative method), or it may use more than one data collection and analytical procedure (multi-method quantitative method). The same applies to the qualitative research process and the methodological process as shown in the Figure below. (Saunders, Lewis and Thornhill, 2016 p.168).

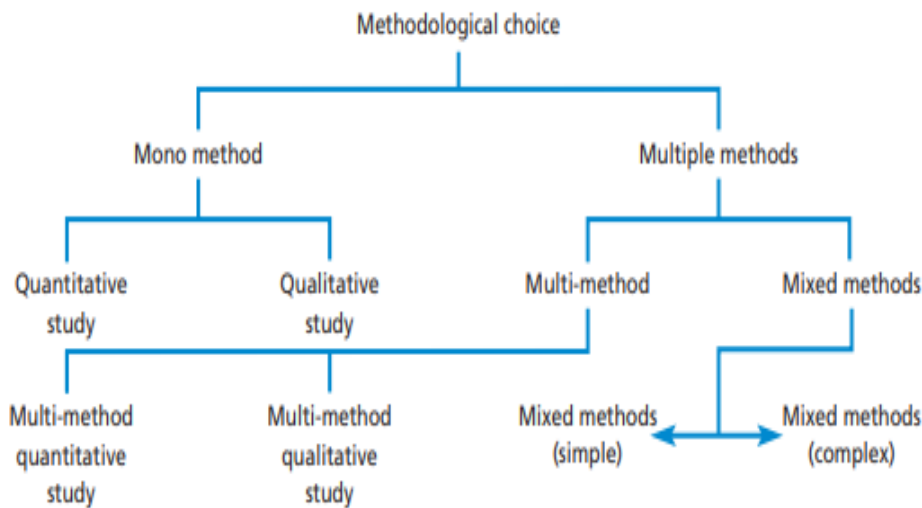


Figure 3.6.3: Methodological choice (Saunders, Lewis and Thornhill, 2016 p.167)

### 3. Mixed research methods

Mixed method research combines both qualitative and quantitative research methods, techniques, approaches and theories into a single study (Johnson *et al*, 2007). This is not to be confused with a multimethod study that involves the use of multiple methods of the same research type- either quantitative or qualitative. Mixed methods research involves the use of both qualitative and quantitative methods either sequentially or concurrently (Venkatesh, Brown & Bala, 2013).

Mixed methods may either be inductive, deductive, or abductive in approach and may equally or unequally use qualitative and quantitative research. (Creswell & Plano Clark, 2011; Nastasi,

2010; Saunders, Lewis and Thornhill, 2016 p. 172). This is to ascertain that priority weight is given to either of the methods which will be the dominant method while the other plays a supporting role, depending on the objectives of the research. The combination of the two methods can range from simple to concurrent or even more complex and sequential forms. This is illustrated in the Figure below.

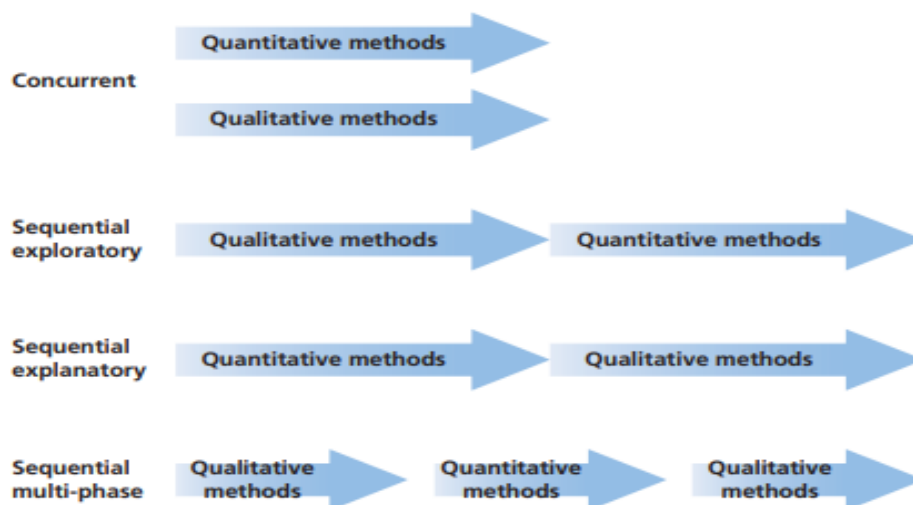


Figure 3.6.4: Mixed Methods Research design (Saunders, Lewis and Thornhill, 2016)

Creswell and Plano Clark (2011) stated that the reason behind using a mixed method is because the combination of both methods builds a better understanding of the research problem and strengthens the whole research design. This is achieved when the strength of one approach offsets the weakness of the other approach.

### 3.6.1.1 Qualitative Vs Quantitative Research Methods.

The most vital of the differences between qualitative and quantitative research methods is their flexibility. In the quantitative method, the researchers take the lead by asking all participants identical questions and in the same pattern. The questions that participants are expected to answer are fixed or 'close-ended'. This makes this research method inflexible, and its advantage is that it allows room for a meaningful comparison of participant's responses and other study

platforms. Nevertheless, it needs an in-depth understanding of the significant questions to ask, the best way to ask, and the choice of probable answers.

In qualitative research, open-ended questions that are not worded in an exact way for all the participants are used. There is more flexibility in that it allows for more naturalness and adaptation of the communication between the researcher and the participant. In this way, participants are free to respond in their own words and style. Participants are given the opportunity to speak more elaborately and in greater details (Mason, 2002 p. 3; Mack, 2005 p. 4).

A few but basic differences in the research methods identified above are summarized in the table below:

<b>Qualitative</b>	<b>Quantitative</b>
Data is in form of pictures, words, and objects.	Data is in form of numbers and statistics. Researchers apply measurements to social life
Participants' point of view- What the participant views as important determines the outcome of the investigation.	Researcher's point of view- The researcher takes the driver's seat and his/concerns shape the investigation.
Researcher is closely involved and tends to be subjectively immersed in subject matter.	Researcher is distantly involved and objectively separated from subject matter.
Researcher is more concerned with contextual understanding, and it is less able to be generalized.	Research is missing contextual details, easier to generalize and able to test hypothesis.

Theory emergent-Theoretical explanation and research concepts develop from data collection.	Theory testing-Theoretical work precedes data collection.
Deep and rich data	Hard reliable data
Researcher is concerned about the meaning of action.	Researcher is concerned with people's behaviour
Unstructured in such a way that the actor's meanings and concept emerge from the data being collected.	Highly structured to enable the researcher to study the exact concepts and subjects that are the main motivation of the study

Table 5: Research method differences (Bryman 2012 p. 408)

### 3.6.1.2 Characteristics of Qualitative Research.

The following are the characteristics of qualitative research that are relevant to this research (Creswell, 2012):

- Explore the problem that has not been studied before (and that subsequent qualitative development may be done) and develop a detailed understanding of the phenomenon.
- Reviewing the Literature which plays a minor role but validates the research problem by documenting existing knowledge of the phenomenon.
- Expressing the purpose of the research questions and participants' experience in such a clear and understandable way.
- Gathering data by documenting participants' views.
- Analyzing the received data for themes and descriptions and using it for interpreting the broader meaning of the results.

- Writing reports using emerging and flexible structures, evaluating the criteria.

### **3.6.1.3 Researcher's Choice**

To fulfil the objectives of this research, qualitative research was conducted. A major characteristic of qualitative research is the small sample size, and the outcome is usually not quantifiable or measurable. The key advantage this technique has, which also constitutes the core difference with the quantitative research is the complete description of research subject analysis, without limiting the nature of participant's responses and also the scope of the research (Collis and Hussey, 2003).

However, the success of this research is profoundly based on the researcher's skills and ability. The outcome of this research is not likely to be perceived to be reliable because they are drawn basically from the researcher's interpretations and personal judgements. It is also considered risky for the results of this research to be perceived as reflecting the opinions of a broader population since it was gotten from a small sample size (Bell, 2010). The qualitative method was also used for this research because it is known to be appropriate for researching a new field of study or theorize and establish issues (Corbin and Strauss, 2008; Creswell, 2007).

To be able to answer the research questions pointed out at the beginning of this research writing, there is a need for a unique depth of understanding that is required, which is difficult to attain from a closed question survey. FinTech stakeholders can freely reveal their experiences, feelings, and thoughts without any constraint. This method also offers a dynamic style to the research where the researcher gets an opportunity to follow up on responses that have been received from the respondents, thereby creating a valuable conversation around the research subject. This is not a possible venture in a structured survey.

While facts and Figures generated by the quantitative research method are unquestionably valuable, one is likely to be left seeking the 'why' behind the numbers, this is opposed to qualitative research where the main respondents have the chance to liberally expatiate on their

responses. Just like the saying of Albert Einstein, '*Not everything that can be counted counts, and not everything that counts can be counted*'. (Toye, 2015. p 7).

### 3.6.2 Data Collection

A range of methods is normally used in qualitative research data collection. The idea behind qualitative research is to purposefully select participants, sites, visual materials, or documents that will best help the researcher answer the research question. Data collection steps involve creating the boundaries for study, gathering information through different qualitative research methods such as interviews and observations (structured or unstructured), documents, visual materials, and creating the procedure for recording information.

Four aspects identified by Miles and Huberman (1994) include:

- a) The setting of where the research will take place.
- b) The actors or participants who will be interviewed or observed.
- c) The proceedings or events that the participants will be interviewed or observed doing.
- d) The process or the developing nature of actions as taken by actors within the setting.

Data are collected directly from a selected sample population and can be classified as direct or indirect data. Recordable words, written words, actions, interactions, and observable body-language that are freshly collected and for the first time are termed **direct** or **primary data**. The interactions can either be human to human or human responses to inanimate objects. Whatever can be communicated or observed is regarded to be actual or potential data. Such information is gotten when considering thoughts, feelings, actions, responses, meanings to experiences, processes of groups, and individuals within their social or cultural settings. Data collected by something else or someone, and have passed through statistical process, such as photographs reporting an occurrence, documents review, or an artistic representation of an experience or occurrences are known as **indirect** or **secondary data** (Kothari, 2004). Depending on the kind of data required for a study, different methods of data collection can either be used singularly or in a combination of two or more.



Direct or primary data collection methods include interviews, open-ended questionnaires, observations, 'think aloud' sessions, and journaling (diary accounts). Unlike quantitative data collection, qualitative data collection methods involve interpersonal contact with the participants. Secondary or indirect data collection involves methods such as document reviews.

The commonly used data collection methods in qualitative research as identified by researchers include:

1. Interviews and focus groups (Ranging from open-ended or unstructured to closed-ended or structured).
2. Observations (Ranging from participant to non-participant).
3. Document review (Ranging from the public to private).
4. Audio-visual materials (including use of materials such as videotapes, compacts, and photographs).

Other methods of data that have recently emerged such as the use of text from e-mail messages and journaling in narrative story writing (Creswell, 2013). Others include focus group internet interviews, chatroom and bulletin board groups, virtual focus groups, web-based interviews, weblogs and life journals (Stewart and Williams, 2005; James and Busher, 2007; Fowler, 2009; Krueger and Casey, 2009; Garcia *et al.*, 2009; Nicholas *et al.*, 2010; Fink, 2012).

Data collection via the web presents advantages such as time and cost-efficiency in terms of reduced data transcription and travel cost. It also affords the researcher the time and chance to consider and respond to any request for information, and as such providing the opportunity for a deeper reflection on the discussed subject (Nicholas *et al.*, 2010; Creswell, 2013). Other advantages include creating a comfortable environment for participants to discuss sensitive subjects, and easy access to hard-to-reach participants (James and Busher, 2007; Creswell, 2013).

### **3.6.2.1 Interviews**

Interviews are regarded as the primary method of qualitative data collection (Bryman, 2012; Whitehead, LoBiondo-Wood, and Haber, 2012). 'Narrative' or 'spoken' is the basic source of qualitative data, where the data is often gotten through a direct meeting between the researcher and the participant or numerous participants by use of in-depth or focus group interviews. An interview is a discussion between two people that has a purpose and structure. It is intended to prompt the interviewee's perspective or knowledge on a subject. Interviews permit the researcher to inquire into complex issues, learning more about the contextual aspects that govern individual knowledge or experiences, and gather reliable and valid data that are relevant to the research objectives (Saunders, Lewis and Thornhill, 2016). These interviews can be conducted either by telephone, email and lately, through social media conversations such as Facebook, WhatsApp and Twitter (Creswell, 2014; O'Leary, 2014).

There are steps to follow in qualitative data collection. Although not to be seen as a linear approach, they often follow each other. They include (Creswell, 2012):

- Identifying the sites and participants to be studied and to identify a sampling plan that will best give understanding to the research's central phenomenon and answer the research questions.
- Gaining access to these individuals and sites by getting permission.
- Consider the information type that will best answer the research questions.
- Design instruments or protocols for collecting and recording information.
- Pay attention to any potential ethical issues that are likely to arise during data collection.

Research interviews are broadly classified into unstructured, semi-structured and structured interviews (Fontana and Frey, 1994 p. 361; Gill et al, 2005; Schneider et al., 2012 p. 128; Kabir, 2016), the major difference being the level to which participants have control over the interview process and content (Cassell, 1980; Fontana and Frey, 1998; Moore, 2002; Corbin and Moore, 2003). As has been considered by various researchers that no interview is without a structure, most interviews can then be classified as lightly structured, semi-structured, or in-depth structured (Fontana and Frey, 1994; Mason, 1994; DiCicco-Bloom and Crabtree, 2006; Kabir, 2016). In their articles, Corbin and Moore (2003) and Jamshed, (2014) further buttressed the

point by stating that unstructured interviews are basically, suggested in carrying out long-term fieldwork which allows participants to express themselves in their own way and at their own pace, with a minimal hold on the participants' responses. Gary (2014) argued that unstructured interviews looks more like a conversation more than an interview, and it's thought to be a 'controlled conversation' which is tilted towards the interest of the interviewer; mentioning that the pioneers of ethnography established the use of unstructured interviews with local key informants in a bid to collect data through recording field notes and observation, as well as involving themselves with the participants of the study. Consequently, he further classified unstructured interviews into three: non-directive interviews, focused interview, and informal conversational interviews.

### 1. *Unstructured Interviews:*

This interview method is like a guided conversation. The style of questioning is typically informal, and the researcher typically has a list of issues or topics, usually known as the interview guide or aide-memoire, that are meant to be covered (Bryman, 2012). These guides resulted from careful and thoughtful work on the research to bring our salient points.

Several nomenclatures have been assigned to unstructured interviews by various researchers: Bell and Waters (2014) have referred to unstructured interviews as a 'preliminary interview' where the interviewer seeks topics or areas of importance from the interviewee. The most commonly used unstructured interview has its origins from the ethnographic tradition of anthropology (DiCicco-Bloom and Crabtree, 2006). Ethnographers get their data from participants' observations and, from the answers given by the participants. In the process, the researcher tries to identify 'key informants' to the interview and takes notes on an ongoing basis. These key informants are selected for their role in the setting and their knowledge, and for their ability and willingness to participate in the research (William *et al*, 1994; DiCicco-Bloom and Crabtree, 2006).

In using unstructured interviews, the researcher's goal is to try and understand the culture and language of the interviewees from their perspectives. Minichiello et al. (1990 p. 93) defined unstructured interviews as a controlled conversation that is equipped to the researcher's interests. With a balance of control, the conversation becomes productive.

Unstructured interviews offer a wider breadth of data than other interview types given its qualitative nature. Many researchers have tried to differentiate between this method of an interview (also referred to as ethnography) and participant observation but Lofland (1971) stated that the two go together and most of the data collected from participants observation come from field informal interviewing (Fontana and Frey, 1994 p. 365). The idea behind unstructured interviews is to offer guidance and gather data about topics that are of interest to the researcher and at the same time being important events in the participant's life (Corbin and Morse, 2003 p. 339). According to Patton (2005), unstructured interviews are as naturally occurring as a part of participant observation.

### 1. *Semi-Structured Interviews*

Described as one of the most powerful methods used to attempt understanding a human being, Frey and Fontana (2000. Pp. 645), as well as Creswell (2012. Pp 46), DiCicco-Bloom and Crabtree (2006) and Jamshed (2014) have defined Semi-Structured interviews as an in-depth interview in which the respondents answer to predefined and open-ended questions, this is also supported by Gubrium & Holstein (2002) and Bryman (2012 p. 212). In other words, they have a guide provided as a set of questions which are a schematic presentation of topics that are to be explored by the researcher. The interviewees can either be an individual or a group. The individual interviews afford the researcher to delve deep into personal and social matters and the group interview allows for a wide range of knowledge but lacking in the in-depth part. They contain numerous basic questions that help in defining the target areas and making sure the objectives are achieved. This interview also allows the researcher to diverge if necessary, to seek any clarification to previous answers, or to request more details on a subject. In other words, flexibility is allowed in semi-structured interviews. (Gill et al., 2008; Edwards and Holland, 2013; Lopez and Whitehead, 2013 p. 128).

The interviewer in this case is interested, basically, in the content and context of the interview, how the participant understands the discussed topic, and what the participant is willing to convey to the researcher and to achieve the optimal use of this method, the guides used in the interviews are intended to explore the respondents more comprehensively and systematically as well as

maintaining focus on the chosen line of action (DiCicco-Bloom and Crabtree, 2006; Jamshed, 2014).

The guide used as questions in semi-structured interviews basically, comprises of the core question, followed by several associated questions that are related to the basic question, the questioning will gradually improve through the session (Edwards and Holland, 2013).

### 1. *Structured Interviews*

Not quite common in qualitative research, structured interviews are characterized by a list of questions usually asked in a specific order. These questions are open-ended and normally, begin with 'why', 'how', 'when' and so on, this distinguishes them from quantitative interviews, which are close ended (Lopez and Whitehead, 2013). These questions are principally verbally directed questionnaires where a list of pre-determined questions are asked with virtually no variation or scope for any follow-up question that will further elaborate on the topic discussed. The questions are presented in a very specific manner and offer the respondents a range of answers (Crawford, 1997; Bryman, 2012 p. 210). Accordingly, they are rather easy and quick to administer, and such methods may find their use where clarifications of certain points are required or where there is likely to be numeracy or literacy issues with the respondents. Nevertheless, they naturally only allow for limited responses and are not of much importance where 'in-depth' is required (Crawford, 1997; Gill et al., 2008; Gray, 2014; Kabir, 2016).

Also commonly known as standardized interviews, structured interviews characterize the administration of an interview schedule by the researcher. The aim here is for the participants to be administered with an exact context of questioning. This style of interview is aimed at ensuring that the respondents' replies can be aggregated, and this can only be reliably achieved if the replies are answers to a matching cue. This can also be summarized as saying that the questions are designed to force participants to answer in a particular way. These questions are set in advance as well as the possible choice of answers. This is because pre-coded responses are keys to allowing comparison across the respondents.

In conducting a structured interview, it is important for the researcher to closely adhere to the instructions of the interview. These include:

- Participants must strictly fit the required sampling criteria
- It is important to follow the right order and filtering all through the questionnaire.
- Personal opinions must not be aired
- Do not read out pre-codes for questions that will require natural or spontaneous answers, the pre-codes can only be read out where instructed.
- Open-ended responses should be written out in full.

### **3.6.2.2 Interview Structure**

There are a few steps involved in interviewing. Six categories of questions developed by Patton (2002) have become the most popular structure adopted by researchers. These are summarized below:

- Behavioural and experiential questions- About what the interviewee has done or is doing.
- Opinions/Values- About what interviewee thinks about the topic/the issue.
- Feelings/Other queries- Attempt to provoke the emotional responses of the interviewee's thoughts and experience. These answers may begin with 'I think...'
- Knowledge- To get hold of facts about the topic.
- Sensory- About what has been touched, heard, tasted, or smelled.
- Demographics/Background- Basic background questions such as education, age, and occupation (try to identify the interviewee's characteristics).

### **3.6.2.3 Researcher's Choice**

- Interviews were used for data collection. The basic aim of the interview was to be able to see through the eyes of the respondents by having them narrate their experiences or views. Consequently, a face-to-face interview was employed. Although it was costly and more time-consuming, it allowed the respondents to speak in depths about the research

topic. The interviews lasted between 30 to 60 minutes and were audiotaped, then transcribed to enable subsequent data analysis.

- Six open-ended (unstructured) interviews were first conducted on key members/informants of the organization to understand the sorts of questions to be used on subsequent participants. A list of topics or questions known as the interview guide was used. It is known as a guide because it is not set on stone, but it simply guides the interviewer. Unstructured follow-up enquiries were further used to explore facts as they arose, during the interview. This allowed the respondents to speak extensively on a variety of topics as concerned the research subject, and also, in depths. At each point, conscious efforts were made to create a non-threatening and comfortable approach. The interviews were conducted in a conversational and emphatic way (Ashworth and Lucas, 2000).
- This was followed by nine semi-structured interviews in which the questions were derived from the responses of the unstructured interviews. Fontana and Frey (2000 pp. 645) have described this method as "one of the most powerful ways in which we try to understand our fellow human beings". The semi-structured questions, being open-ended were targeted at defining the questions under investigation while providing an occasion for the participants and researcher to converse on some topics in detail. These interviews were targeted at producing standardized and structured responses to standard questions in order to minimize differences in responses (Bryman, 2004; Creswell, 2012). This interview method also allowed the researcher to probe the respondents to expatiate on original answers or to trail a line of inquiry presented by the respondents.
- Finally, five structured interviews were conducted with the intent of generalizing from a sample to a population (Fowler, 2009).
- The pace of this interview was controlled by the researcher by treating the questionnaire as a theatrical script to be followed straightforwardly. As such, the same questions were administered to respondents, in the same sequence. According to Bryman (2004), the structured interview has similar features to quantitative research which include reduction of error due to variation and increasing accuracy and easing the processing of respondents' answers. The list of interviewees is tabulated below.

### 3.6.3 Sample and Sampling Technique

Sampling enables a researcher to minimize the amount of data needed by considering data gotten from only a subgroup rather than from all possible elements or cases. The aim of sampling is therefore to follow theoretical lines of enquiry instead of achieving population representatives (Saunders, 2012). Some researchers have argued that sampling results in higher overall accuracy than a census. The smaller the number of cases, the more time can be spent designing the means of gathering these data. (Barnett, 2002; Saunders, 2012).

The sample is carefully selected to allow conclusions to be drawn about the general population. Though such a population may not be easy to study as not all cases or elements may be easily accessed, the researcher may be able to redefine the population into a more manageable size. This is generally known as a subset of the population called a target population (Saunders, 2012). This is represented in the Figure below:



Figure 3.6.5: Population, target population, sample and individual cases (Saunders, Lewis and Thornhill, 2016).



Two basic sampling techniques are known: probability or representative sampling and non-probability sampling. Probability sampling, also known as representative sampling, is most commonly associated with survey research strategies where there is a need to make conclusions from a sample about the population to meet the research objectives and give answers to the research questions. In probability sampling, each element selected from the target population is usually known to be equal for all cases. A sampling frame, which means a complete list of all the cases in the target population from which a sample is drawn, is used in sampling selection. This sampling method is associated with survey research approaches where inferences are made from the sample and about a population to answer the research question and meet the research objectives. The selection would require a statistical estimate (Saunders, 2016)

While in non-probability sampling, there is no need for a sampling frame, and the selection is not based on statistical estimates, although generalization is still possible from the target population (Saunders, 2012). This sampling method is not suitable for market or case study research as there is no sampling tray in such research. Non-probability sampling allows for a range of alternative sampling techniques, most of which include a part of subjective judgement. At the exploratory stage of some research such as pilot testing of a questionnaire, a non-probability sampling may be the most suitable even though it will not allow the determination of the extent of the problem.

The Figure below summarizes the classification of sampling methods available.

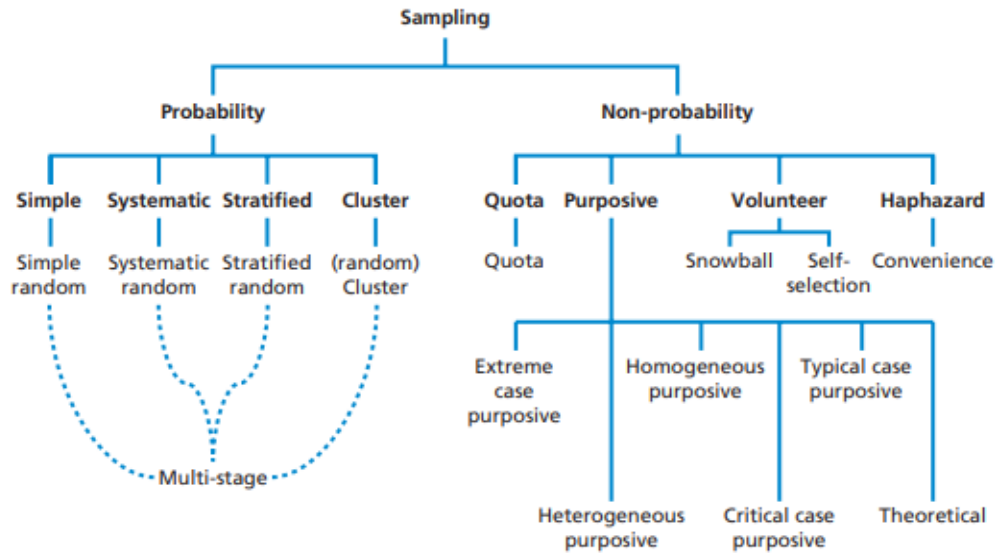


Figure 3.6.6: Sampling Techniques (Saunders, Lewis and Thornhill, 2016).

The table below gives a summary of non-probability sampling types:

Sample type	Description
Purposive	Tries to find out features that meet certain criteria
Snowball	Researcher depends on participants' recommendations to engage new participants.
Quota	Researcher picks cases from various subgroups.
Convenience	Researcher collects data from any case the is found as convenient.

Table 7: Non-probability sampling types (source: Author)

### 6. Purposeful Sampling

As a result of Patton's (1980,1990,2002,2015) typology of purposeful sampling method, it has become the most termed way of sampling in qualitative methods literature (Gentles et al., 2016

p. 1777-1778). In describing Purposeful Sampling, Patton (2015) said that "The logic and power of purposeful sampling lie in selecting information-rich cases for in-depth study. These are cases from which one can learn a great deal about issues of central importance to the purpose of the inquiry...The study of information-rich yields insight and in-depth understanding" (p. 264). Purposeful sampling is further broken down into several methods and the table below guides as to which is most suitable for this research, according to the approach taken (Miles & Huberman, 1994; Patton, 2012; Creswell, 2012).

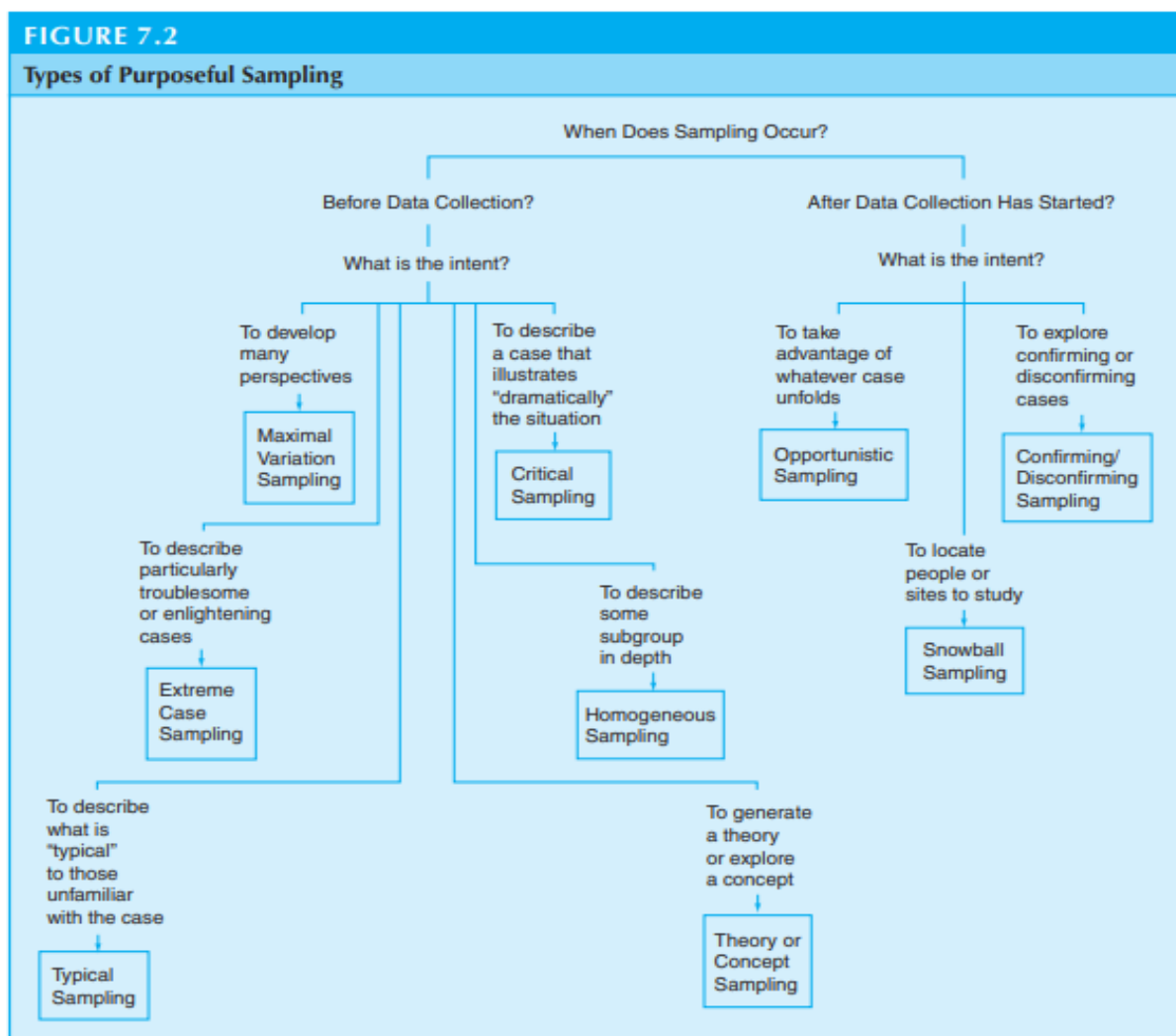


Figure 3.6.7: Purposeful Sampling types. (Miles & Huberman, 1994; Patton, 2012; Creswell, 2012)

## 2 Maximum Variation Sampling

From the Figure above, it is seen that Maximum Variation Sampling uses the researcher's judgement to select participants with adequately varied characteristics to provide the maximum variation possible in the data. The varied data collected is aimed at explaining and describing the key themes that are observed. As much as this might seem contradictory to the fact that small samples may have cases that are entirely different, Patton (2002), as well as Saunders, Lewis, and Thornhill (2016 p.301), have pointed out that this in fact a strength, and further said that any pattern that emerges represent key terms and are likely to be of particular value and interest. Consequently, the data should enable the uniqueness of the document. As seen in the summary below, heterogeneous purposive sampling emerges when the focus of the data collection is 'key themes. The logic behind purposeful sampling, and heterogeneous or maximum variation method to be precise, lies in selecting information-rich cases for in-depth study, where a sampling population with varying characteristics will be targeted, aimed at maximizing the richness and depth of data that will address the research question.

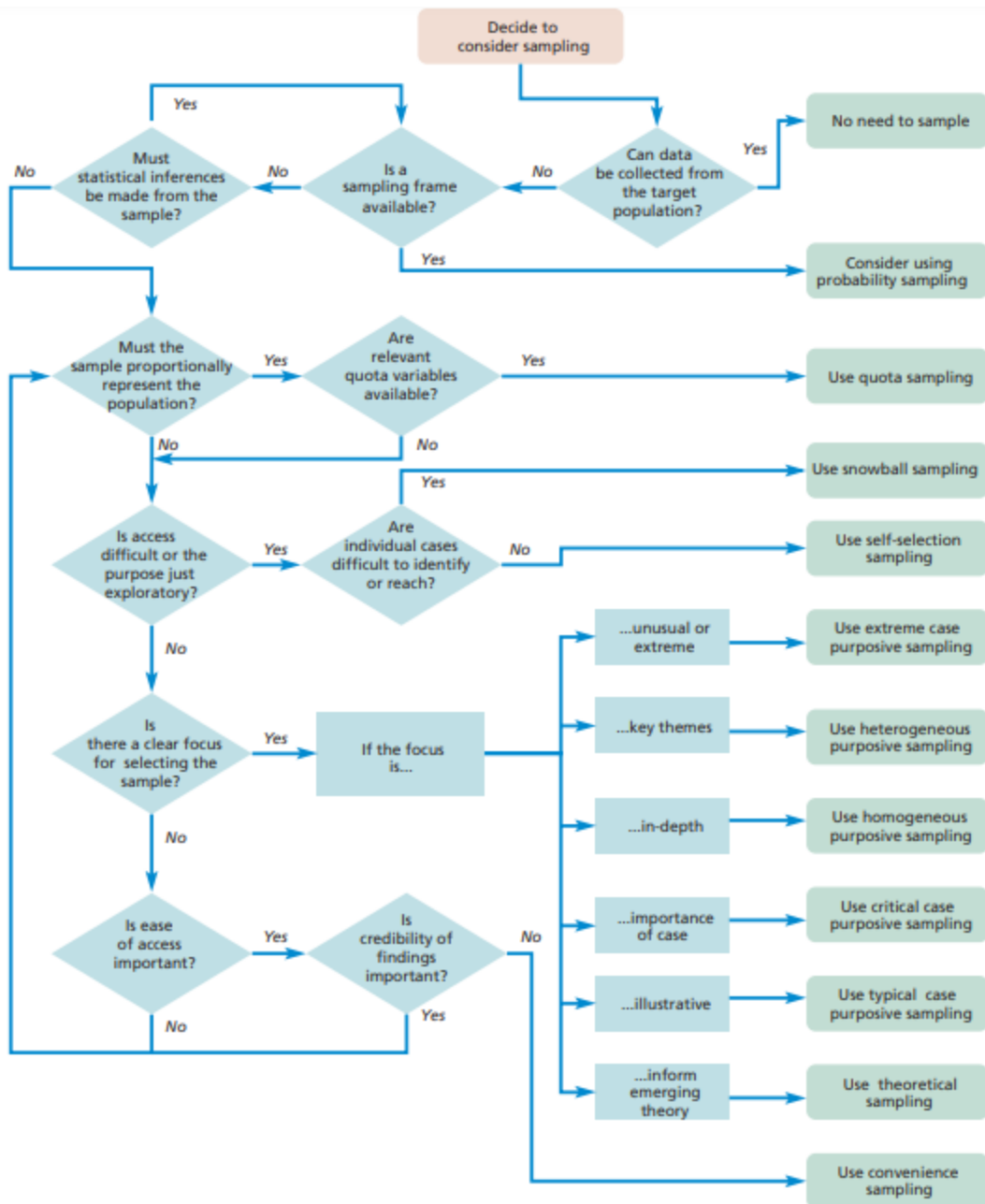


Figure 3.6.8: Choosing a Sampling Technique (Saunders, Lewis and Thornhill, 2016).

### 3.6.3.1 Sample Size

Unlike quantitative research, smaller samples are used in qualitative research. Non-probability sampling has no rule when it comes to the sample size. Although, in qualitative research, several authors have argued that (Dey, 1999; Charmaz, 2006; 2014;), the generally recommended

criterion for deciding when sufficient sample size has been achieved is saturation (Glaser and Strauss, 1967; Lincoln and Guba, 1985; Glaser, 1992; Morse, 1995; Merriam, 2009; Gentles et al., 2016). While this may look helpful, authors such as Saunders, Lewis, and Thornhill (2016 p.297) do not see this as answering the question of how many participants are likely needed in a sample. The important factor here is the logical relationship between the selected sampling technique and the purpose of the research, with generalizations being made to theory instead of to the population (Gentles et al., 2016; Saunders, Lewis and Thornhill, 2016). Thus, the size of the sample is dependent on the objectives and research questions, paying attention to what needs to be identified, what will be useful, what resources are available and the credibility the research will have. Even though the insights, validity, and understanding that will be derived from this data will depend on skills of data collection and analysis more than on sample size, a guidance that will ensure that enough interviews have been conducted is important (Patton, 2002; Saunders, Lewis and Thornhill, 2016 p.297). Onwuegbuzie and Leech (2007) have suggested that in as much as the sample size in qualitative research should not be large, this makes it difficult to extract thick and rich data, it should also not be too small to make it difficult to achieve data saturation, theoretical saturation, or information redundancy (Strauss and Corbin, 1990; Lincoln and Guba, 1994; Flick, 2009; Gray, 2014). For a heterogeneous study, Creswell (2013) suggested between 5 and 30 participants while the table below represents a guide for different non-probability studies as suggested by Saunders (2012).

<b>Nature of study</b>	<b>Minimum sample size</b>
Semi-structured/In-depth interviews	5–25
Ethnographic	35–36
Grounded Theory	20–35
Considering a homogeneous population	4–12
Considering a heterogeneous population	12–30

Table 8: Minimum non-probability sample size (Saunders, Lewis and Thornhill, 2016).

### 3.6.3.2 Researcher's choice

The purpose of qualitative research is not to generalize a population but to build an in-depth exploration of a key phenomenon. To answer the research questions and achieve the objectives

of this research, in-depth interviews must be conducted. Selecting the interview participants was purposefully or intentionally centred on an iterative process also known as purposeful sampling (non-probability sampling) (Creswell, 2014). This aim to maximize the richness and depth of data that will address the research question (Kuzel, 1999). Like Patton (1990 p.164) has stated, the standard employed in choosing sites and participants is whether they are 'information-rich'.

This research used the Maximum Variation Sampling strategy (also known as Heterogeneous Sampling), which aimed at developing many perspectives. The major characteristic of qualitative research is presenting multiple perspectives of participants to represent the complexity of the system. This sampling allows the researcher to sample cases that differ on some characters and then search for individuals that display various dimensions of that characteristic (Creswell, 2012). Figure 3.6.8 was used as a guide to choose the appropriate sampling technique for this research. This research is centred on three separate categories of FinTech players: Providers, Users, and Regulators. The samples were picked across the three categories, and at various stages of development or sophistication.

As aligned to the approach taken, the non-probability sampling method will be used, heterogeneous, or maximum variation method to be precise, and a sampling population with varying characteristics will be targeted. The non-probability sampling method ensures that all respondents do have an equal chance of being selected for the study. The researcher can use his or her discretion in selecting the sample items or respondents.

#### **3.6.4 Data Analysis**

Data analysis is the process where data is examined and interpreted to gain an understanding of what it represents. It is not only data collection that requires planning but data analysis also. In the qualitative research context, when data is collected, the researcher sifts and sorts the data in search of types, sequences, patterns, classes, and wholes. The reason for this process is to compile or reconstruct the data in a more profound or comprehensive fashion (Jorgensen, 1989 p. 107).

In achieving this goal, recorded information, handwritten notes, or raw field notes produced must be converted into notes that characterize 'intelligent products' (Welman et al., 2005 p211).

Theme identification in the interview's context comes as a further analysis (Welman et al., 2005), in which there is the need to "pull together and categorize a series of otherwise discrete events, statements and observations" (Charmaz, 1983 p.114).

Different types of data analysis are:

- 1 Content Analysis:** the most common type of data analysis, this refers to the process of categorization or tagging verbal or behavioural qualitative data into themes. It is the analytical technique, which categorizes and codes qualitative data for further analysis (Saunders et al., 2016 p. 635; Dudovskiy, 2018; Medelyan, 2019). The definition by Krippendorff (2018) saying "Content analysis is a research technique for the objective, systematic and quantitative description of the manifest content of communication", is quite important as it contains key concepts that will help to understand the technique and differentiate it from the others. Content analysis can be used to analyze data generated through conducting interviews, amongst others. The processes involved in content analysis are sampling, devising analytical categories, defining the unit of analysis, conducting coding, and finally undertaking quantitative analysis (Saunders et al., 2016 p.611).
- 2 Narrative Analysis:** This is concerned with content, structure and the functions of the stories that have been in both written and oral forms (Bamberg, 2012; Demuth and Mey, 2015). This method of analysis has common use in uncovering the fundamental ideologies hiding in stories and a wider culture group that forms the narratives (Stokes, 2003; Garcia Rodriguez, 2016)
- 3 Discourse Analysis:** this method covers a variety of approaches that study the social effects of the use of language. Discourse generally refers to the written or spoken language where they are being referred to as text or talk. The emphasis in this type of analysis is not on studying the way language is used for its own sake, but how language is used to shape this meaning-making procedure to construct social reality. (Saunders et al., 2015; Dudovskiy, 2018). The discourse analysis method is specifically useful if the focus of the study is on building or strengthening a brand. (Medelyan, 2019)
- 4 Framework Analysis:** this is a flexible method that allows the researcher to either begin analysis after all data has been collected or begin analysis while data is still being



collected. In this process, the data collected is charted, sifted, and sorted in line with key issues and themes. Five steps involved in the analysis are familiarization, identifying a thematic framework, indexing, charting, and mapping and interpretation. (Ritchie and Spencer, 1994; Srivastava and Thomson, 2009; Dudovskiy, 2018). A code frame framework, which is a hierarchical set of themes applied in coding qualitative data, is an example of such. (Medelyan, 2019)

**5 Grounded Theory:** this method starts with the analysis of a single case and then formulate a theory. This theory is 'grounded' in real data, and then additional cases are examined to see if they will be relevant and contribute to the original theory (Dudovskiy, 2018; (Medelyan, 2019).

Seen as a poorly branded method because it is not named as a method of analysis, another commonly used analytical method is **thematic analysis** (Hsieh and Shannon, 2009; Nowell et al., 2017). Several variations of thematic analysis exist, ranging from methods that are deductive to those which are inductive, having substantial differences between them. Thematic analyses allow for analyzing interview data because it is useful in identifying, analyzing, and reporting patterns (theme) within the data. However, it goes beyond this to interpret various aspects of the research topic (Braun and Clarke, 2006 p.76). Thematic analyses also go along to uncover relevant themes (Attride-Sterling, 2001; Nowell et al., 2017) and hardly rely on any pre-existing theory or theoretical framework. It is also used to report the experiences and meanings of participants. An advantage of the analysis method is its flexibility which allows for use in both exploratory studies, where there is no clear idea of what pattern being searched for, as well as deductive studies where the researcher knows exactly what is being studied (Mortensen, 2020). Views vary on when a researcher should engage with the literature during data analysis. While some researchers believe that a more inductive approach would be improved by not engaging with literature at the earlier stage of the research, some say that a theoretical approach requires engagement with the literature prior to the analysis (Braun and Clarke, 2006).

Again, Tuckett (2005) contends that engaging with the literature in either approach, at an early stage prompts the researcher to lean towards more subtle features of the data. My literature review has already provided hints of potential issues and informed of the development of codes and themes. However, by adopting a reflexive approach, this research will maintain an inductive,

theory creating analysis which is consistent with the researchers' point of view. Thematic analysis tries to identify patterns of themes in the data (Braun & Clarke, 2013 p. 178; Vaismoradi et al., 2013 p. 400; Nowell et al., 2017). Thematic analyses describe a process where data is transformed into a map of the most important themes in the data. Six steps are involved as lined up by Braun and Clarke (2006), as seen in the table below which begins with familiarization with data, generating initial codes, searching for and reviewing themes, naming and defining themes and finally a write-up of findings (See also Caulfield, 2019; Mortensen, 2020). Having stressed that these are guidelines and not rules, Braun and Clarke (2006) stated that any data analysis method needs to permit flexibility in its application. Guidance regarding potential pitfalls to be avoided when using thematic analysis. A point mentioned was the failure to 'actually' analyze the data all. Thematic analyses do not just involve the collection of extracts looped together with little or no analytic narrative, neither is it a collection of extracts with analytic observations that primarily paraphrases their content.

<b>Phase</b>	<b>Description of the process</b>
1. Familiarizing yourself with your data:	Transcribing data (if necessary), reading and re-reading the data, noting down initial ideas.
2. Generating initial codes:	Coding interesting features of the data in a systematic fashion across the entire data set, collating data relevant to each code.
3. Searching for themes:	Collating codes into potential themes, gathering all data relevant to each potential theme.
4. Reviewing themes:	Checking in the themes work in relation to the coded extracts (Level 1) and the entire data set (Level 2), generating a thematic 'map' of the analysis.
5. Defining and naming themes:	Ongoing analysis to refine the specifics of each theme, and the overall story the analysis tells; generating clear definitions and names for each theme.
6. Producing the report:	The final opportunity for analysis. Selection of vivid, compelling extract examples, final analysis of selected extracts, relating back the analysis to the research question and literature, producing a scholarly report of the analysis.

Table 9: Phases of thematic analysis (Braun and Clarke, 2006, p.16; Nowell et al., 2017)

Using the research questions as themes is another pitfall to be avoided. In such a case, no analytical work has been done in identifying themes across the data set. A good thematic analysis needs to contain interpretations of data which is consistent with the set-theoretical framework.

#### **3.6.4.1 Researcher's Choice**

For this research, according to the aims and objectives stated, thematic analysis was adopted as the most suitable analysis method. This is because it is an independent qualitative descriptive approach that identifies, analyze, and report themes or patterns within data (Braun and Clark, 2006 p. 79). While interpretation and description are the key features of the analytical method, it is mainly suitable for research that prefers a higher level of description rather than an abstract interpretation. This research aims to critically evaluate the success factors of FinTech as it applies to Nigeria, and in doing this, thematic analysis is the best approach to finding out about people's views, knowledge, experiences, and opinions or values from a set of qualitative data.

To answer the questions posed by the objectives of this research, the raw data obtained through the interviews were transcribed and converted into write-ups that represent 'intelligible products' (Welman et al., 2005 p. 211). Theme identification was the next step where the researcher categorized series of statements, observations, and events. For this research, coding was used to extract aspects about the rationale of challenges faced by the industry as it relates to set-up, regulation, patronage, competition, and sustainability of FinTech in Nigeria. The outcome represented the 'intelligible products' mentioned earlier. An analysis was done by relating the outcome to the research goals and then an interpretation of results. The steps mentioned above are the same as the steps taken to analyze data using thematic analysis and hence the use of this method of analysis.

NVivo qualitative data analysis software was used for coding the data and creating a thematic template, and this analysis was directed by the nature of research questions. Coding at an early stage helps in reducing data, making it handier and easier to retrieve precise excerpts when needed, while late coding makes the data complex, emphasizing new links between various parts. The earlier coding is sometimes viewed as interpretation where these codes are eventually and systematically interrogated and explored to develop various aspects of the analysis. This analysis

involved reading and re-reading the interviews and then developing NVivo memos on various issues, such as the leading roles of regulators, then returning to the individual interviews, and then developing an analysis through detailed interrogation of data. This software proved to be a very useful tool in terms of organization and storage of data, as well as providing a hierarchical structure. NVivo supported the iterative process, allowing for codes to be easily deleted, added, or changed.

Further division to thematic analysis is made based on whether the approach involved allowing the data to determine the themes (Inductive), or if the approach involved studying the data with some preconceived theme, theory, or existing knowledge (Deductive). As earlier stated, there is no theory or hypothesis in place, this study involves the plan to develop my own framework based on my findings which qualifies it as inductive.

### **3.6.5 Ethical issues**

In conducting this research, ethics are given serious considerations. Given the type and nature of the industry being dealt with, confidentiality from the researcher is a vital requirement, and information of such classified nature should not be divulged. In the framework of this study, ethics describes the appropriateness of the researcher's conduct in as regards the rights of those who agree to become subjects of the research or are affected by it (Saunders et al., 2016 p. 225-226). These ethical concerns are normally emergent during the planning of the research and the principles have been relevantly broken down into four different areas ((Dill, 1980; Bryman and Bell, 2015 p. 134):

- If there is harm to the participant
- If informed consent was lacking
- If there is invasion of privacy
- If there was involvement of deception

Consequently, the purpose of the conducted research was clearly, communicated to all respondents before any research, affording researchers enough time for consideration. It is

worthy of note that no research was conducted on any organization without a prior understanding of the nature of the research as well as consent.

The participants and their organizations were also informed of the topic under research. Letters of consent, agreements, and confidentiality were also drafted and signed specifically for this research. The anonymity of participants was also respected in the data collection process and also in the course of the research interviews, participants were not compelled to respond to any question which was considered unsuitable by them. For the voice recording of the interview, an agreement was also sought for the use of such instruments and participants had the right to refuse the use of such instruments.

### **3.7 Summary**

This chapter reviewed the research questions and the general aim of the study. The chapter summarized the philosophical framework of the study, placing it decisively in the ontological and epistemological stance of social constructionism. It also defined and discussed the design of the research that was used, validating the choice of the research approach, described the data collection method employed, and how it was analyzed. The software used for the analysis and the associated ethical issues and research limitations were also discussed. The next chapter presents the findings from the collected data and subsequent interpretations.

## **CHAPTER 4: FINDINGS AND ANALYSIS**

## **FINDINGS AND ANALYSIS**

### **4.1 Introduction**

The purpose of this research is to study and identify factors responsible for FinTech success around the globe and to propose a framework for a sustainable Nigerian FinTech industry. The study considers the roles of the various stakeholders in the Nigerian FinTech industry and how much their roles affect the success and sustenance of the industry. To explore this matter, and in line with the research design as described in the preceding chapter, face to face interviews were conducted with top management executives of the participating organizations. Unstructured, semi-structured, and highly structured interviews were used and although I have some knowledge of the industry and its operations, the unstructured interviews were first conducted for a catch-up. This is because the industry has gone and is constantly going through a lot of transformations which always happens very fast that one can hardly keep track of. This chapter is in four sections, the first section reviews the methodology used and identifies the interviewees involved, the second section explains the data analysis process, the third section presents the findings of the primary data analysis, and the section four offers the discussion. Finally, the last section chapter will specifically address the findings based on the research objectives presented in chapter one of this work.

#### **4.1.1 Methodology**

A summary of the research methodology is presented in this chapter and in the diagram below. The target of the interviews was to see through the eyes of the respondents by having them narrate their experiences or views, which allowed the respondents to speak in-depth about the research topic. The interviews lasted between 30 minutes to 60 minutes, and thematic analysis was used for the data analysis, with the help of NVivo 11 software.

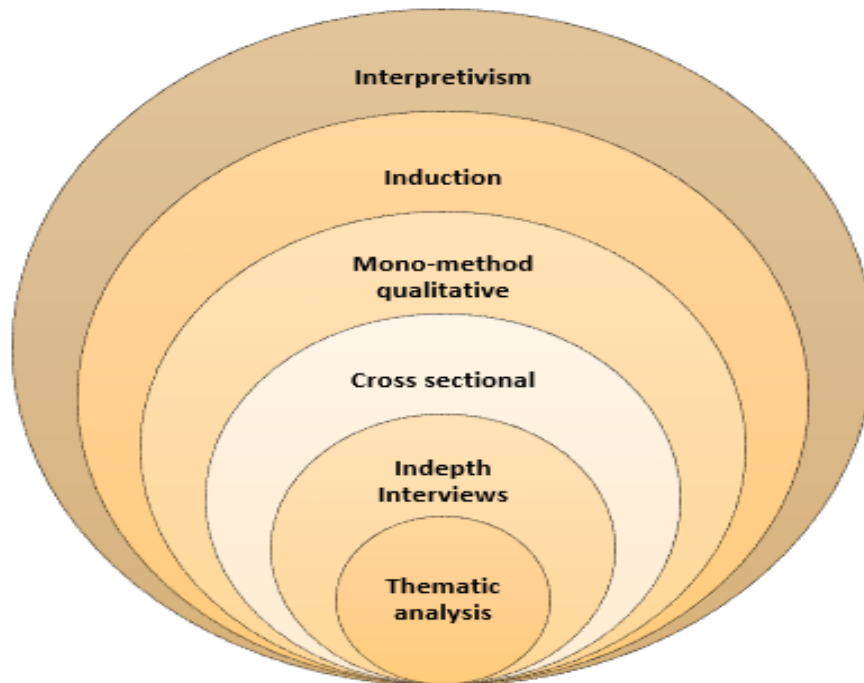


Figure 4.1: Research methodology (Source: Author)

#### **4.1.2 List of Interviewees**

The table below is the list of interviewees drawn from various arms of the FinTech ecosystem. Efforts have been made by the researcher to obtain different points of view from an assortment of users, regulators, and providers of FinTech. Amongst users interviewed are agent bankers and corporate organizations. The regulators include the Central Bank of Nigeria (CBN), Enhancing Financial Innovation and Access (EFInA), RegTech, Telecommunications Companies (Telcos), Nigerian Communications Commission (NCC), and the Federal Ministry of Finance (Government). The providers were drawn from various FinTech start-ups and incumbents, as well as traditional banks.



Participant	Title of Participant	Expertise	Work experience	Organization
α	Head of department	Banking	e-Banking	Bank
β	CEO	Payments	Incumbents	FinTech
γ	CEO	Payments	Incumbents	FinTech
δ	CEO	Payments	Incumbents	FinTech
ε	CEO	Payments	Incumbents	FinTech
ζ	Deputy Director	Payment Systems Management	Regulation	Bank
η	CEO	Academia	FinTech user	Education/Research/Consulting
θ	CEO	Broadband Infrastructure	FinTech user	Infrastructure provider
ι	CEO	Digital Banking	Incumbent	FinTech
κ	Manager	Financial development consultants	Research, Innovation, Advocacy and Capacity Building	Financial inclusion development support
λ	Manager	Limited banking services	Incumbent	Agent Bank
μ	Systems Manager	Regulatory monitoring services	Regulation	RegTech
ν	Project Supervisor	Internet Service providers/PSB	Service providers	Telecoms/ Public Sector Banks
ξ	Executive Vice Chairman	Regulator	Regulation	Telecommunications
ο	Supervisor	FinTech	Regulation	Bank
π	Administrative Assistant	FinTech	Regulation	Government
ρ	Manager	Banking	e-Banking	Bank

Table 8: List of interviewees (Source: Author)

## 4.2 Data Analysis process

This section is meant to provide a step-by-step narrative of the data analysis process.

Data analysis started during the interviews as I was already noting words and phrases that were repetitively used by the participants. An example of such a phrase was the need for the successful growth of financial inclusion in the country.

### Step 1- Familiarization with data.

On completion of the interviews, the audio recordings were transcribed verbatim. All transcripts were read for an initial impression and then re-read to identify keywords and phrases that would be used with the analysis software, NVivo to detect trends. The initial impression was that the industry was committed to achieving a sustainable organization.

*Coding types:* Four approaches have been outlined by NVivo in achieving this: Coding file contents, coding whole files, coding from queries based on words or phrases they contain which is achieved using word frequency search or text search queries, and auto coding (QSR International, 2020).

### **Step 2- Generating initial codes.**

The coding from queries approach was used in this study, running multiple keywords and word frequency searches. The keywords 'financial Inclusion' and 'Regulation' were ran using NVivo 11 software and based on the type of search, 381 references were produced for further review.

### **Step 3- Searching for themes.**

525 references produced were broken down into 13 separate codes. NVivo website has described nodes as 'a collection of references about a specific theme, case, or relationship'. In working with NVivo, nodes play a vital role as they allow the researcher to deposit similar data in one place to make looking for patterns and ideas easy. Nodes, as well as case nodes can be created (QSR International, 2020). The themes were identified from the codes based on several factors such as statement intent, quantity, and multiple triangulation connection and/or member checking (See appendix for system-generated word clouds)

<b>Codes</b>	<b>Sources (# of Interviewees)</b>	<b>References</b>
<b>Financial Inclusion</b>	20	90
Support	12	47
Funding	4	12
Infrastructure	16	58
<b>Growth</b>	20	54
Operation	4	10
Collaboration	4	9
Sustainability	7	13
Cost	20	75
<b>Regulation</b>	5	26
Compliance	6	29
Security	18	39
Trust	20	63

Table 9: NVivo word frequency table (Source: Author).

*Multi Triangulation:*

While some themes were not referenced verbatim as having high frequencies, their intents were bearing and were thus elevated to theme or sub-theme status. An example of such is 'funding', while only referred to twelve times and by just four interviewees in the transcripts, it was elevated to a sub-theme because analysis of transcripts, multiple triangulations, and member checking, revealed statements that tied 'funding' to FinTech 'growth', and 'sustainability'.

*Quantity:*

The number of times some phrases appeared placed them on the theme and sub-themes tables. These include phrases such as 'financial inclusion' which was referenced verbatim 90 times in the transcripts by all 20 of the interviewees.

*Statement intent:*

An instance of a sub-theme demonstrated using multiple triangulations is ‘collaboration’. While only mentioned fifteen times in the transcripts, and by only ten interviewees, other interviewees did not mention ‘collaboration’ verbatim but spoke of integration, mergers investing in FinTechs and, acquisitions, and implying such to be significant in sustaining the FinTech industry.

**Step 4- Reviewing Themes.**

This is usually done manually. As more discoveries are made, one may want to manually code the contents of another node. The Figure below shows how the codes were organized into themes.

<b>Codes</b>	<b>Theme’s nodes</b>
Financial Inclusion	Financial Inclusion
FinTech funding	
Lack of infrastructure	
Operational support	
FinTech and bank Collaboration	Sustainability
Inadequate security	
Lack of trust	
Financial regulation	Regulations
Risk and regulatory compliance	
High cost of license	

Table 10: Creating themes from codes (Source: Author).

### Step 5- Defining and naming the themes

<b><i>Theme 1</i></b>	<b><i>Financial Inclusion</i></b>
Definition	" Financial Inclusion is defined as "the process of ensuring access to financial services and timely and adequate credit when needed by vulnerable groups such as the weaker sections and low-income groups at an affordable cost by mainstream financial institutions players" (Singh and Roy, 2015).
Description	Financial Inclusion is a function of several factors such as access to funding, adequate infrastructure, and the right operational support given by the government and the relevant regulators.
<b><i>Theme 2</i></b>	<b><i>Sustainability</i></b>
Definition	“Sustainability may then be defined as maintaining well-being over a long, perhaps even an indefinite period “(Kuhlman and Farrington, 2010)
Description	Collaboration between FinTech organizations and traditional banks, adequate security, and public trust for FinTech activities that will expectedly foster FinTech sustainability.
<b><i>Theme 3</i></b>	<b><i>Financial Regulation</i></b>
Definition	“Financial regulations are laws and rules that govern financial institutions. Regulations of financial institutions focus on providing stability to the financial system, fair competition, consumer protection, and prevention and reduction of financial crimes” (Kumar, 2014).
Description	Regulatory barriers, compliance with government regulations, and cost of doing business.

Table 11: Theme definitions and descriptions (Source: Author).

### 4.3 Data Analysis Themes.

#### 4.3.1 Theme 1: Financial Inclusion

In 2013, CBN rolled out the NFIS document called the National Financial Inclusion Strategy which contains 10 channels and products for assessing the Apex bank's progress in the 2020 financial inclusion target; of importance to this article are Savings, Payment, and Point of Sales (Iwere, 2019).

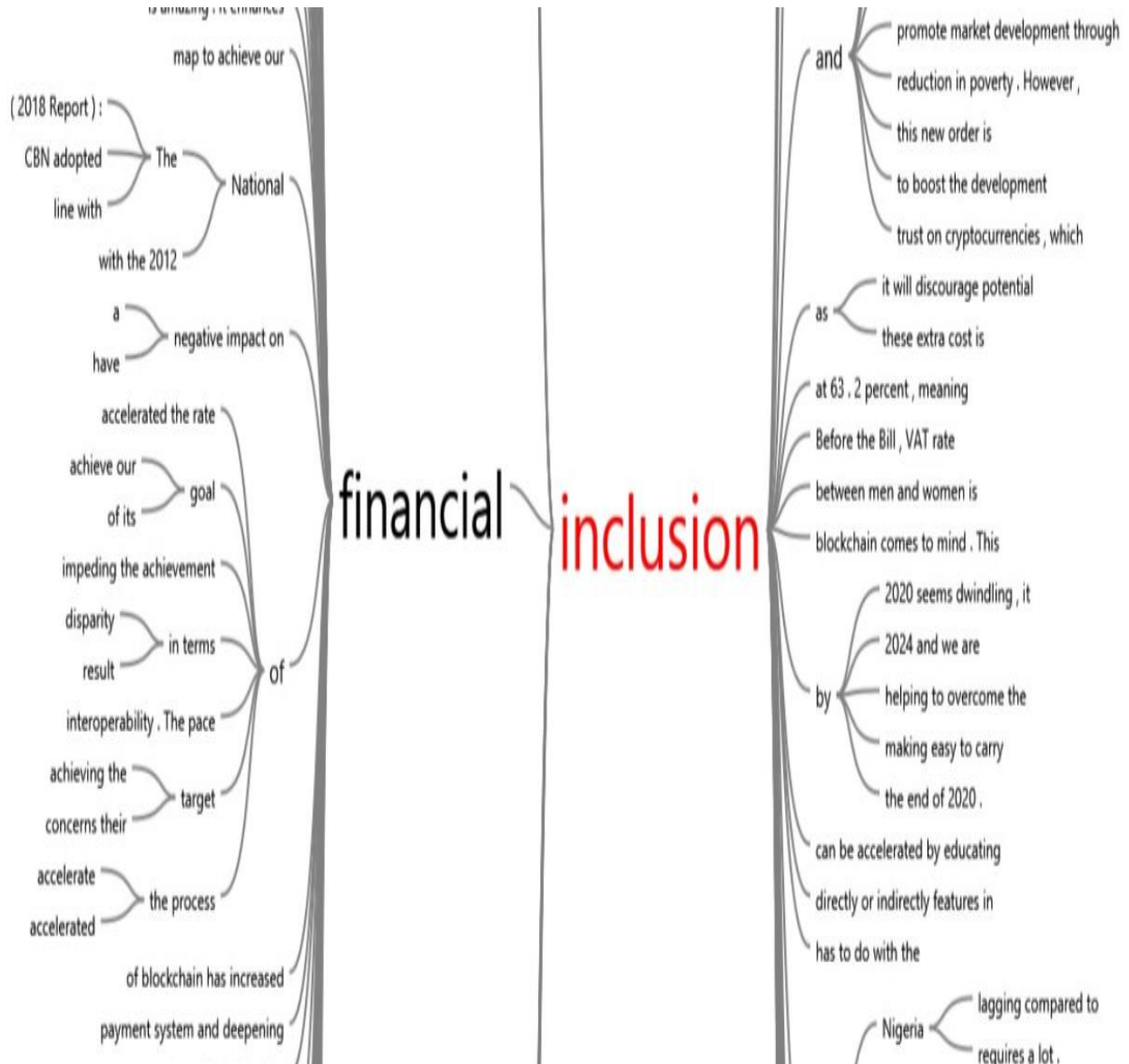


Figure 4.2: Financial Inclusion word tree (Source: Author)



Figure 4.3: Financial Inclusion word cloud (Source: Author)

The findings here indicated one of the key factors to the success and sustainability of the FinTech industry is financial inclusion. The principle of financial inclusion has adopted a higher level of importance in modern times due to its seeming importance as a driver of economic growth. Financial Inclusion is a global priority on every agenda as it has been deemed a strong enabler for the ‘Sustainable Development Goals’ of the United Nations. The World Bank Group (2020) considers it a key enabler in the reduction of extreme poverty and boosting shared prosperity.

Some major hurdles for policymakers and the FinTech industry to achieve the set target of financial inclusion in Nigeria as identified from the interviews included financial illiteracy. Below are some excerpts from the interviews. Respondents  $\nu$  and  $\beta$ , respectively said:

*“There is large informal sector with large number of unskilled persons. Illiteracy has been a major problem. Distrust among most people”.*

*“SEC should encourage competition in the digital sector. It encourages innovative ideas and technology. It can collaborate with Nollywood or leverage YouTube and Facebook to develop and disseminate short videos on financial literacy, to educate the public on the need for FinTech services. This is necessary because with a larger market, FinTech firms will be instigated to be more innovative. The SEC needs to encourage the development of innovative capital market products and processes that promote competition and efficiencies in financial services”*

Other hurdles identified included insecurity as mentioned by respondents  $\theta$  and  $\beta$  interviewed were:

*“My biggest challenge in using FinTech companies is the fear of insecurity of information. There is this lack of trust for online transactions due to the fact that information given by users could easily get into the hands of fraudsters. This is not the case when you are using traditional banks. They are safer”.*

*“The idea of agent banking was born out of the desire to achieve the vision 2020 goal of 80% financial inclusion and reduction in poverty. However, there is no plan to increase the functions of these agents other than remittances/payments and deposit of cash. Due to insecurity, the functions of agents are limited. It is not safe for them to handle huge cash or carry out other cash – related functions like provision of loans. Rural dwellers must find their ways to cities where traditional banks are situated for other services other than withdrawal and deposit”.*

And for gender inequality, the World Bank report (2018) reported that in developing countries, the gender gap in account ownership has been stuck at 9 percentage points, hampering women from being able to efficiently control their finances. The excerpts below are from the interviews with respondents  $\gamma$  and  $\theta$  respectively:

*“The areas that government and regulatory bodies should focus their research and development to enhance financial inclusion include the provision of more POS terminals, bridging the rural and gender gaps”.*

*“Lastly, financial literacy programmes among women and girls, such as the use of accounts, need for online transactions, the importance of budget, how to plan and save, etc., will help to tackle gender gap in the unbanked public”.*

The sub-themes, which include support, funding, and infrastructure are also the basic requirements identified by various stakeholders as leading factors hindering the sustainability of the FinTech industry.



### ***Sub-Theme: Operational Support***

The respondents made it clear that to achieve success as well as sustain FinTech operations in Nigeria, different types of support are required. The types of support needed are basically from the government as well as the regulators in that industry such as CBN, SEC, NCC, and others, which includes financial, infrastructural, and regulatory support as mentioned below by different regulators (Respondents  $\beta$ ,  $\mu$  and  $\beta$  respectively).

*“There are too many regulations governing the activities of FinTech operations. This comes with high cost and maintaining these regulations become difficult”.*

*“The success of telcos is faced with some challenges. Nigeria’s weak macroeconomic conditions have led to weak labour market dynamics (high unemployment and underemployment rates), reduced disposable income and poor corporate performance. Operational support services like service configuration, customer care, order fulfilment, etc., are becoming increasingly complex. Hence, the cost of handling these operations will increase financial overhead”.*

*“More licenses are still been issued to support improved payment system and deepening financial inclusion in the financial sector. Presently, over \$400 million have been invested in the FinTech sector just to support effective payment services in the country”.*

Having 'operation and support' as codes were basically because of the statement's intent, as earlier stated. FinTech operation was one of the most common frequencies as is seen in the world cloud below. FinTech describes the range of financial activities such as cheque deposits via phone, bypassing a bank to get credit, money transfers, managing investments, or raising funds, generally without the help of a person. It also includes the development and use of cryptocurrencies. For sustainable FinTech operations, the financial regulators need to approve and issue licenses and guideline (license operations), the right infrastructure, both hard and soft, such as power supply, internet access, anti-money laundering, and KYC protocols need to be up to date and in place. With all these lined up, and for a single FinTech operation to succeed, there is a need for the CBN operations and license issuer, NCC as internet access providers, RegTech which seeks to help financial service firms meet the industry compliance rules as well as anti-money laundering and anti-fraud. Respondents  $\alpha$  and  $\alpha$  have this to say:

*“The CBN has the primary responsibility of regulating financial services in Nigeria, but we are not the sole regulatory body when it comes to regulating FinTech operations. There are others such as the Nigerian Deposit Insurance Corporation (NDIC), the Financial Services Regulations Co-ordinating Committee and the Nigerian Communications Commission (NCC). The NDIC protects deposits, the FSRCC promotes safe, sound and efficient practices by financial intermediaries, while the NCC regulates FinTech activities where mobile services are involved”.*

*“The CBN is working with organizations like SANEF and EFINA to support the activities of financial services agents and to achieve vision 2020 of 80% inclusion”.*

*“We are also trying to increase the financial support to FinTech sector so as to enable them lend more through their platforms”.*

*“Although there are no existing crypto regulations in Nigeria, the country’s Security and Exchange Commission (SEC) announced in September 2019 that it organized a committee called the Fintech roadmap committee and Blockchain/ Virtual Financial Assets Working group which will develop a framework to support innovation and regulation within the Blockchain and Virtual financial assets’ space taking into cognizance effective investor protection, financial market integrity, and financial stability”.*

Not left out also is foreign support which is vital to the growth and expansion of the Nigerian FinTech industry as mentioned by the interviewees. To thrive in the ecosystem, FinTech start-ups require support provided by Incubators/Accelerators in form of tax/accounting advisory, marketing/regulatory/managerial/legal guidance, and office space. As much as attempts have been made by innovation hubs to offer support to start-ups, the impact is yet to be felt within the industry. This is as confirmed by respondents  $\beta$  and  $\kappa$  below:

*“The absence of technology hubs in some states may be a reason for impeded growth. Tech hubs are not evenly distributed across the states of the country”.*

*“In fact, FCA has dedicated about £2m to support FinTech start-ups in the country”.*

*“SEC may develop innovations that support financial inclusion and promote market development through the building of the capacity of the market participants”.*

Telcos, a name given to subsidiaries of mobile network operators that were granted PSB (Payment Services Banks) licenses have also opened in the interviews facing challenges in terms of operational support. See excerpt below, by respondent  $\mu$ :

*“The success of telcos is faced with some challenges. Nigeria's weak macroeconomic conditions have led to weak labour market dynamics (high unemployment and underemployment rates), reduced disposable income and poor corporate performance. Operational support services like service configuration, customer care, order fulfilment, etc are becoming increasingly complex. Hence, the cost of handling these operations will increase financial overhead”.*

### ***Sub-Theme: FinTech funding***

Four interviewees mentioned funding twelve times during the entire interview process, but it has been picked as a sub-theme after multi triangulation and member checking. It was observed that the four interviewees that mentioned funding as an integral part of FinTech growth and sustainability are the FinTech providers who are expected to pay a huge sum of money to acquire licenses and set up the necessary infrastructure for the businesses. These providers are in a better position to talk about funding than the users, and regulators. PwC (2020) stated also that the lack of a veritable platform to raise capital for FinTech expansion has stalled a lot of FinTech organizations from taking off from the ideation stage, adding that the bulk of funds raised are from foreign investors, with very little participation from the local investors. This is what a provider (respondent δ) had to say about this:

*“The sector also needs funding. Adequate funding will help FinTech companies in several levels. I think FinTech companies need more investment, terminals, and infrastructure. We also need to enable offline retail with equal amount of ease and convenience as the online retail”.*

*“Most FinTech companies, especially start-ups, tend to go through multiple funding stages as they grow before they can become established businesses”.*

*“Funding is a serious challenge to most FinTech companies, especially start-ups. This has discouraged most investors who do not have sufficient capital to pull the company through the different levels and stages which require funding before the company can become a well-established business. The cost of FinTech license is very high in Nigeria. This is a serious problem. It is a major factor that has hindered the flow of investment into the sector”.*

After multi-triangulation, it was observed that 'funding' has also been referred to by other interviewees as 'investment'. Total investments in FinTech take account of VC, PE, and M&A. This research has uncovered that there is a minimal level of participation in the growth of funds

in FinTech investments. Lack of various marketplace programmes where FinTech start-ups can demonstrate their innovations to potential investors and lack of developed programmes for alternative funding markets that will provide capital formation are big challenges faced by the industry. Some responses (respondents β, δ and ο) are included below:

*“The government has already developed a roadmap to invest in the FinTech sector. Silicon Valley is what it is today because of the huge investment in the sector. The Nigerian government, in collaboration with the African Development Bank (AfDB), developed this plan in 2018 to encourage start-ups FinTech companies in the country. A long-term plan of \$500 million innovation fund was determined for these start-ups. There is also another \$500 million technology innovation fund by the AfDB. These funds, when fully available and judiciously used, will give us something close to the Silicon Valley experience”.*

*“But I am aware of the fact that the startup and sustainability of FinTech requires huge capital investment, something that a bank like First Bank can afford”.*

*“Adequate funding will help FinTech companies in several levels. I think FinTech companies need more investment, terminals, and infrastructure”.*

*“In 2018, after visiting tech start-ups and hubs around the country, including the well-known Silicon Valley, the Federal Government had talks with the AfDB to provide \$500 million innovation fund for technology and creative sector. However, till date nothing has been done”.*

One key factor that has led to the failure of several FinTech start-ups and incumbents is the lack of a standard regulation. Nigerian industry lacks a source of regulation around FinTech funding through venture capitalists who subject the process to uncertainty and variation. As a result, local investors are skeptical about venturing into such businesses. This is seen in the responses given by the interviewee λ as below:

*“The high level of risk and uncertainty is a reason why potential investors are skeptical to invest in the FinTech sector. They may not be able recoup their investment for a long time. It is very expensive to meet the minimum requirement for shareholder fund (SHF) for basic license. License fee and renewal fee are other expenses. Cost has been a major barrier to entry into the industry”.*

*“Most domestic investors are not tech inclined. This has discouraged them from seeing the opportunities in the FinTech sector. Multiple taxes and inadequate facilities, like inconsistent power supply, have also discouraged potential investors”.*

### ***Sub-Theme: Lack of Infrastructure***

Lack of infrastructure was referenced 58 times during the interviews. Having the right infrastructure in place will create a more efficient, safer, stable, and ensure speedy services in the system. Infrastructures such as high-speed broadband, power, IoT infrastructure, cloud infrastructure, are lacking; and where existing, not optimal. To power FinTech solutions, the cost required to set up the infrastructure is eventually passed to the final customer. A Nigerian FinTech report stated that FinTech organizations had to incur heavy expenditure to procure cloud or run data centres generate power, and access internet broadband to power their solutions, and eventually passing these costs on to the final customer (Phillips, 2020). This is confirmed by the responses of interviewee  $\rho$  and  $\beta$  below:

*"The sector has quality services, quality facilities and experienced staff, but there are problems like inadequate infrastructure, unfriendly government policies and unfriendly environment which the government must take care of".*

*"Apart from the cost, increasing access to the internet also depends largely on the spread of broadband infrastructure. There is no improvement in the infrastructure that powers the internet. The ICT ministry is paying no attention to fixing the many challenges facing fixed broadband which is actually more reliable and efficient".*

*"Some of the challenges facing fixed broadband and limiting its penetration in Nigeria are poor electricity supply, pricing or high cost of deploying broadband infrastructure, the huge amount paid to pass a specific route or way either through grounds or property belonging to another person, the distance from the base station to users in rural areas, etc. "*

The National Collateral Register is an example of a great development that was meant to ease the problems of database access in the lending sector, and eventually boost the smooth operations and sustainability of FinTech, but the success of this has been marred by several factors of which infrastructure is key. This is what respondent  $\epsilon$  had to say about it:

*“Infrastructure has been a serious challenge for FinTech start-ups in not only Nigeria but Africa as a whole. Since 2016 when the National Collateral Registry was launched, it has achieved very minimal success. The NCR is yet to have a major positive impact on FinTech start-ups, as Rahmon Ojukotola rightly pointed out. There is lack of a database system in Nigeria. This is the major problem NCR wants to eliminate, and if this database system is even available, there is the serious problem of lack of power supply to access the system”.*

*“Infrastructure still remains a challenge to the optimal utilization of the National Collateral Registry. Consequently, FinTech start-ups in particular have not been able to benefit from this database”.*

### **4.3.2 Theme 2: Sustainability**

Sustainability is synonymous with the success of FinTech. Despite the massive potentials and aggregation of relevant growth indicators, the Nigerian scenery is not recognized as attractive to FinTech when compared to places like Singapore, the US, UK, China, and other European FinTech hubs. This is because there are stronger negative factors as well, that scare investors away.

Important growth indicators of FinTech as noted by KPMG FinTech in Nigeria include the fast-growing young population (115 million are below 35 years), the exponential growth of active phone lines, huge financial inclusion potential (less than one-third of the population have bank accounts), and relatively strong talent pool base that can be developed into digital solutions (Phillips, 2020). Growth, as it affects FinTech is significant to its sustainability, in several ways; and to better understand the factors that can affect FinTech sustainability, the sub-themes are discussed further.

#### ***Sub-Theme: FinTech and Bank Collaboration***

The justification for any strong collaboration is the ability to bring a concerted effort of strengths together to create a stronger entity than either individual could achieve on their own. For most of the FinTech organizations, the key differentiators are an innovative mindset, a consumer-centric perspective, agility, and the provision of adequate infrastructure. These are the advantages that most legacy organizations lack. On the other hand, FinTech organizations are hardly able to scale adequately because of brand recognition and trust. They lack the basic capital, established



network of distribution, and compliance and regulatory knowledge. These are the fundamental strengths of the legacy banks. See below some excerpts from the interviews conducted with respondent  $\rho$  and  $\beta$  respectively, and a summary of the advantages of collaboration as rightly put in by respondents  $\lambda$  and  $\xi$ :

*“The truth is that the future of the financial sector actually depends, to a large extent, on the collaborations between banks and FinTechs, not in terms of physical mergers between banks and FinTechs, but in terms of collaboration to perform certain services efficiently while maintaining individual independence as separate entities”.*

*“Traditional financial players should embrace the rise of these FinTech companies by investing in these platforms and working in collaboration with them. Competing against them will do banks more harm than do. Banks need to develop more digital products and offer solutions that are easy to access”.*

*“As pointed out by various experts, the future of the financial sector will rely on collaborations and mergers between banks and FinTechs in order to stay ahead of changing times”.*

*“Collaboration is the way out. Banks should acknowledge the inevitability of FinTechs. In fact, FinTechs can use their platforms as enablers of banks' financial services. Banks can develop more digital products and offer their solutions that are easy to access. It does not deprive FinTech companies from providing their services to the public”.*

A world FinTech report published by Capgemini et al. (2018) stated that most of the successful FinTech organizations have now focused on narrower segments or functions that have high friction levels or on those that were underserved by the traditional financial institutions but have tried to profitably scale without help. The challenge is trying to develop an atmosphere where collaboration can thrive as opposed to stifling the beneficiary traits of either partner. The world report stated that a key barrier is the ability to discover the talent required to facilitate these collaborations (Capgemini et al. 2018).

***Sub-theme: Inadequate security.***

Due to the dependence of FinTech on data, a large volume of proprietary and personal data is vulnerable to attack and improper use. The threat of data compromise and theft underscores the importance of cybersecurity. Cyberattacks are consistently on the rise and such has made major

FinTech organizations allocate high budgetary votes for the fight against cybercrime. The challenge of protecting data comes along with another challenge, cost. The UK cybersecurity market, which is one of the biggest in Europe, is valued at about \$5 Billion (Phillips,2020). Of the 20 respondents, 18 have mentioned that lack of security or fear of cybercrime is one of the key hindrances to financial inclusion in Nigeria. Respondents v and θ said:

*“There is the need to actually improve on security and trust. On the issue of larger loans, I think these companies should be careful and see how their loans can be retrieved successfully”.*

*“FinTechs rely on data, which is vulnerable to attack and misuse. The interconnected financial systems further accentuate the threat of data theft and cybersecurity. If the risk of cyber security is not curtailed, then it may lead to financial instability. Most consumers prefer banks just because of this fear”.*

### ***Sub-theme: Lack of trust***

Lack of trust is a major issue stalling the growth and sustainability of the FinTech industry. An article by sustainable and inclusive DFS (2018) pointed out that Nigeria's financial inclusion aspiration of 80 percent by 2020 is failing, and this statement is based on the findings of the World Bank Global Findex and Intermedia. Both institutions had agreed that financial inclusion is on the decline and even though the reasons for the mass exodus are debatable, trust is one of the key reasons. (Sustainable and Inclusive DFS, 2018). Excerpts from my interview with a FinTech user θ to support this is seen below. Consumers' trust level is low, particularly when it comes to fairness and transparency of premium pricing and claims (Phillips, 2020):

*“Their challenges are numerous. Fintech companies rely on data which is vulnerable to attack and misuse. These are insecurity of data, cybercrimes, too many regulations, huge license fees and lack of trust for online transactions”.*

*“Rating from 1 to 10, I will say 7. That is, about 70% trust in the FinTech companies in handling my private data. I still nurse that 0.3 probability or 30% fear that my data could get into the hands of fraudsters anytime”.*

Some reasons for the lack of trust as stated by the respondents include a low level of financial literacy. Insurance is one sector of FinTech that has not thrived well in Nigeria. With technology, insurance has been made reachable, but a huge gap still exists because of consumer education on how it works. Due to a lack of awareness, a typical investor's assets are rather stuck in property



or land investment. Agent banking was also introduced as one of the means of faster financial inclusion in Nigeria, but it has not recorded much success due to lack of public trust. This can also be majorly attributed to lack of education. Respondent  $\rho$ , an e-banking manager in the bank and  $\beta$ , from one of the regulatory bodies said:

*“To improve the viability of agents’ business in the country, the CBN must endeavour to build public distrust, enlighten the public on the importance of agent banking, and provide more POS terminals”.*

*“The idea of agent banking was born out of the desire to achieve the vision 2020 goal of 80% financial inclusion and reduction in poverty. However, there is no plan to increase the functions of these agents other than remittances/payments and deposit of cash. Due to insecurity, the functions of agents are limited. It is not safe for them to handle huge cash or carry out other cash – related functions like provision of loans. Rural dwellers must find their ways to cities where traditional banks are situated for other services other than withdrawal and deposit”.*

*“We will continue to have long queues in bank halls for some reasons: there is lack of trust for online transactions due to cybercrimes. There is lack of adequate POS terminals and there is the problem of ignorance. Most Nigerians, particularly those in rural areas, are unaware of the existence and importance of these online services”.*

### **4.3.3 Theme 3: Financial Regulations and Compliance**

#### **Sub Theme: Financial Regulations and Compliance**

The existing regulatory framework in the Nigerian market has been classified as inadequate for the FinTech business in several ways. It has also created uncertainty on how regulators plan to treat certain FinTech products such as crypto assets. This has posed a serious challenge to the growth of the sector because innovators are not only uncertain about the future of innovations, but regulatory bodies are also seen to be ambivalent to innovations- technological in particular. Respondent  $\pi$  and  $\beta$ , who are both regulators admitted in the interviews as below:

*“The industry can be made attractive for investors if there are juicy incentives like few regulations, reduced license fees, tax cut, tax holiday, constant electricity and security”.*

*“There are too many regulations governing the activities of FinTech operations. This comes with high cost and maintaining these regulations become difficult. Some of the guidelines are interwoven and interlaced. Yes, we know that for banks and FinTechs to get the adequate support from CBN, regulations should not be fixed and should be regularly reviewed to get the best”.*

On the same note, FinTech owners have had causes to doubt the reasons behind some regulations as there have been speculations that, in so much as the CBN wants to hit its financial inclusion target, it is rolling out regulations that favour the traditional banks in fear that they might be put out of business by the growing FinTech industry. A statement by the CBN Governor as reported by several tabloids reads thus: "In our industry, we have common threat, the threat posed by fintech. I call on CIBN to up its ante. As far as advocacy is concerned, it should be your major focus, to find lasting solutions to the threats posed by fintech". (Egobiambu, 2018; Gbadeyanka, 2018). A regulator (respondent  $\beta$ ) stated the following:

*"These regulations have helped to control entry into the sector and given banks some shield. More FinTech companies will spell more doom for us as banks".*

*"FinTech companies emerged with products that are substitutes for some banks' products. This created competition. They disrupted the financial system and if the CBN Governor, Mr. Godwin Emefiele, does not proactively put regulations and mechanisms in place to check them, FinTech can cripple banks".*

Compliance with regulations has remained an impediment in the growth and sustainability of FinTech and in the global financial industry. This has impacted on both the Nigerian investors and the financial performances when fines and penalties are put into consideration. As Bejide (2019) rightly stated, compliance issues are global and the Nigerian financial sector needs improved regulatory momentum to make certain no obscurities in the rules of law, and for its valuable understanding and implementation. See excerpts below from respondents  $\rho$  and  $\nu$ :

*"Nigeria has been rated as the number one country in Africa with the highest level of financial crimes and fraudsters. That is not a good reputation. To combat this menace, there must be strict compliance to standards by financial institutions put in place by the CBN and other regulatory bodies to address financial crimes in Nigeria".*

*"The existing regulatory framework in the Nigerian capital market neither provides enough clarity on the role of FinTech companies nor clearly articulates their licensing and compliance requirements. This limits its services to the public, especially those in remote areas".*

Talking about compliance brings things like Sandbox and RegTech to light. Programmes and facilities put in place by either the government or private ventures to ensure compliance in the financial industry. See below excerpts from the interviews ( $\alpha$  and  $\lambda$ ) that spoke about such:

*“The Sandbox will enable the CBN to test financial innovations by FinTech companies. It helps to align regulations and compliance with the rapid growth of FinTech companies”.*

*“RegTech is the combination of regulation and technology which is used to support the procedure of reporting, adaptation and compliance with internal rules and regulations”.*

### **Sub-theme: Cost of doing Business**

During the interviews, all the respondents have mentioned that the cost of starting and maintaining a FinTech business in Nigeria is cumbersome, lamenting that the fees are a barrier to a total financial inclusion, adding that money laundering rules may as well be heavy for smaller FinTechs to comply with (Frost & Sullivan, 2018). See below excerpts from the interviews with government regulators,  $\pi$  and an incumbent,  $\gamma$ :

*“Of course, the cost of license, as set by CBN, is an impediment to financial inclusion. It has discouraged a lot of investors from investing in the FinTech sector. However, these various license fees and costs serve as entry barriers and help to protect the industry”.*

*“It is an impediment to financial inclusion. The cost of setting up a FinTech company in Nigeria is very exorbitant. The high cost of license has discouraged so many potential investors. More licenses need to be given to promote financial inclusion or at least accelerate the process. The capital requirement for the licenses of FinTech companies imposes an impediment for start-ups. While the license fees cost between just ₦50,000 to ₦2 million, two licenses have capital requirements of ₦3 billion and ₦5 billion. That is huge”.*

*“I have always maintained that banks and FinTech companies can collaborate in some areas. Outsourcing ATM to FinTechs is one of such areas. The cost of maintaining is very high, especially after the CBN announced a review of fees on ATM, card maintenance and electronic transfers”.*

*“A foreign International Money Transfer Operator (IMTO) wishing to operate in this country must have a minimum share capital of \$1 million and a list of licensed agents. The IMTO must pay a non-refundable fee of ₦500,000 and with a minimum paid-up share capital of ₦2 billion. The list is almost endless. It is frustrating for these companies”.*

In talking about cost, other phrases such as fees, taxes, and charges were also considered which points to the same challenge faced by the industry. The Federal executive council recently approved an increase in VAT from 5% to 7.2%, and stamp duty of N50 (£0.11) on every deposit

(cash or electronic transfer) of N10,000 (£22.22) and above, both of which have been frowned at by businesses and individuals respectively. These new taxes/charges have been a set back to the targeted financial inclusion (Onwuaso, 2020), and the sustainability of FinTech businesses in Nigeria, considering that they are mostly privately funded. See excerpts from respondents ι and λ, who are both incumbents.

*“The introduction of the Finance Bill led to the increase in Value Added Tax rate, which in turn has increased taxpayers’ financial burden. This will eventually make some FinTechs to leave the industry if they cannot cover their cost”.*

*“Recall that the backlash from Nigerians and industry stakeholders of the Financial Bill which imposed N50 charge on transactions above N10,000 as against payment above N1,000.....The directive was condemned by mobile money agents, retailers, merchants and bank customers who said it would discourage the cashless transaction and financial inclusion agenda of the Federal Government”.*

*“The Finance Bill of 2019 does not consider the impact of tax payment and its increases on FinTechs. It is a disincentive to potential investors who desire to venture into the FinTech industry. Consequently, the newly signed and implemented bill has a negative impact on FinTech through a reduction in financial inclusion”.*

## **4.4 Discussion**

### **4.4.1 Financial Inclusion**

Financial inclusion has over the last decade been a target chased across the world. There has also been significant progress as the Global Findex report revealed that over 1.2 billion adults around the world have acquired formal financial accounts since 2011, with Nigeria having 36.8% of its population financially excluded (PwC, 2020). Financial inclusion is key to FinTech growth and sustainability and a very important global mission because studies have shown a correlation between sustainable economic growth and access to finance. And as would be expected, countries that have higher inclusion levels are those with higher income levels and lower poverty rates. An example of such is comparing the United States with an average of 7% exclusion rate having 1.3% extreme poverty and Nigeria with about 50% poverty rate having an exclusion rate of 41.6% in 2016. No wonder financial inclusion is an enabler of 8 out of the 15 Sustainable

Development Goals outlined by the United Nations, it helps to improve the citizen's standard of living, especially those neglected by deposit money banks and found at the bottom of the pyramid. The Figure below describes in details the financial inclusion strands in Nigeria, where the stands are mutually exclusive of each other:

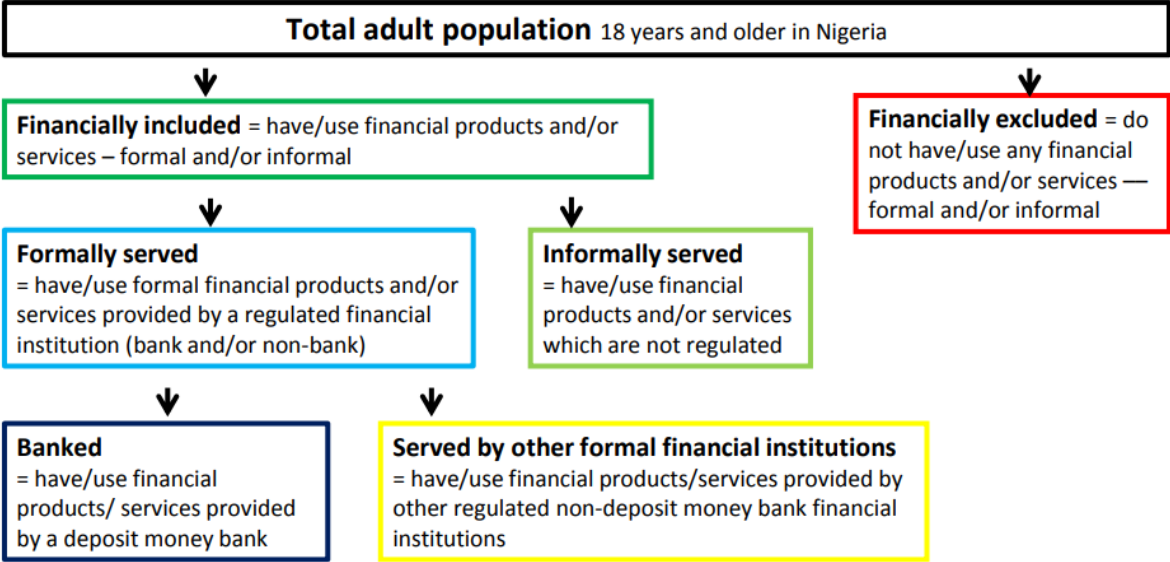


Figure 4.4: Total adult population, Nigeria (PwC, 2020).

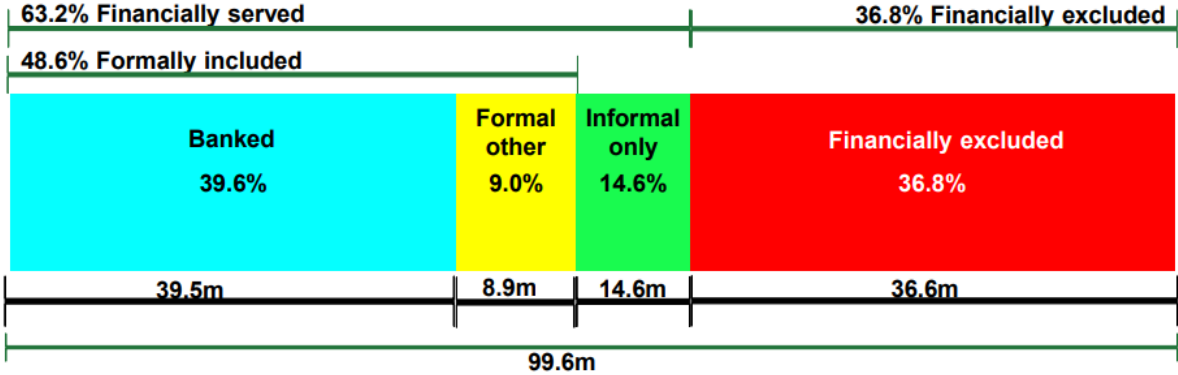


Figure 4.4.2: Nigerian underserved population (PwC, 2020).

The Nigerian financial landscape has considerably evolved with the entrance of agile and efficient financial technology firms. In ensuring financial inclusivity in Nigeria, FinTech holds

much promise, especially as it concerns financial products and/or services offerings, and in granting credit to the real sector.

### *FinTech and Financial Inclusion:*

It has been observed over decades that innovations and markets thrive with the right infrastructure (hard and soft). Hard infrastructure ranges from broadbands, power supply, transport links, and payment architecture, while soft infrastructure from marketplace practices to rule of law, regulatory frameworks, codes of conduct, prominent components of digital infrastructure such as cloud computing, internet broadband, and network infrastructure. The business promise of every tech start-up is anchored on the security of transactions/operations, speedy service delivery, low cost of transactions, and ease of conducting business. And basically, all FinTech start-ups depend on services that have already been provided by the existing financial industry players- from assets custody, access to credit history, industry data access, payment processing, KYC, and other activities that are specific to their nature of business. But unfortunately, on the Nigerian landscape, the basic infrastructures for FinTech start-ups to access such services are either fragmented, difficult to find, unautomated, or even unavailable.

With more than one-third of the bankable adults in Nigeria financially excluded, the CBN's Financial Inclusion Strategy is designed to ensure a financial inclusion rate of 95% by 2024, which in turn will ensure the sustainability of FinTech in Nigeria. Achieving this will require a collaborative effort between the stakeholders of the industry which includes FinTech companies. FinTech's most developed sub-sectors in Nigeria include payment and remittances, mobile lending, digital banking, wealth management, and insurance. Amongst those that are key drivers for actualizing this are the Mobile Money Operators (MMOs), which includes FinTech's big techs such as Paga, KongaPay, Fetswallet, and others, who have flooded the market with new and simplified apps that are designed to easily appeal to the consumer to get on board the payment and remittances services. Mobile lending has also been on an increase in the markets, targeting the small and medium-sized (SME), and retail sectors. Such products allow the users to apply for credit online without the need for collateral, and with the use of advanced technology for credit analysis (Green, 2020). With the increase of traditional banks' loan-deposit ration from 60% to 65% by the CBN, FinTech owners have the opportunity of increasing their lending, given

their extensive financial footprints, and the comparative ease of assessing loans without the needless rigour and weighty documentation processes requested by the traditional banks. FinTech organizations are also in a better position to digitize the economy with the provision of easy, user-friendly, and swift processes of making payments and carrying out online banking transactions.

Other processes of building the capacity of FinTech to support and improve financial inclusion include the use of special funding and grants to find ground-breaking ways of getting services to clients in a way of reducing the transaction costs, optimize and improve the use of existing infrastructure.

FinTech developments and practices in advanced FinTech jurisdictions suggest that FinTech' involvement has a deepening effect on capital markets, leaving a positive impact on their economies. The low level of local participation of local investors in the Growth Funds of FinTech investment has been a challenge to the Nigerian ecosystem. Furthermore, the non-existence of various marketplace platforms where start-ups can provide and demonstrate briefs about their offerings to potential investors has further worsened the problem. In the Nigerian FinTech setup, the major funding for start-ups to assess capital at the seed stage has always come from the international partners. This has created an impediment to start-ups as there are few options at that stage to provide the required initial start-up capital to purchase a licence and start operations. Not only will a developed funding structure guarantee access to sustainable and substantial funding, but it will also provide FinTech organizations access to major partnerships, industry knowledge, and collaborations.

There is presently not a single source of regulation or guidance around funding for FinTech organizations through Venture Capital in Nigeria. What is obtainable is the varying requirements from one VC to another, which leads obviously to variations and uncertainty. Sensitizing local investors, standardizing the requirements, and simplifying the process for funds access will go a long way in boosting FinTech start-ups.

A World Bank study that reviewed the progress of financial inclusion plans in the Middle East and North Africa found that deficiencies in regulatory frameworks and financial infrastructure made an increase of access to finance more costly and unsafe for financial institutions (Pearce,



2011), such as were recorded in the interviews as factors responsible for failure of FinTech in Nigeria.

*‘Adequate funding will help FinTech companies in several levels. I think FinTech companies need more investment, terminals and infrastructure. We also need to enable offline retail with equal amount of ease and convenience as the online retail’, and ‘. There are too many regulations governing the activities of FinTech operations. This comes with high cost and maintaining these regulations become difficult. Some of the guidelines are interwoven and interlaced’*

Ardic (2011) also discovered that the number of banked households in that region remained at 42%. While the proportion of deposits and loans per head may be comparatively low, the average size of these loans and deposits compared to the GDP remained high, indicating the high tendency to save in that region.

To substantiate the findings of this research, Andrianaivo and Kpodar (2011) also discovered proof that in Africa, a significant share of the populace is financially excluded and thus resort to the utilization of informal financial services, adding that the financial inclusion was becoming an impossible mission due to lack of access to financial services and absence of financial instruments. This problem is obviously, accentuated by insufficient financial infrastructure. During this study, several respondents, drawn from different sub-sector of FinTech have attributed a lack of infrastructure as a serious impediment to FinTech growth and sustainability. One respondent,  $\alpha$ , is quoted saying:

*“The reasons are simple. Firstly, there is a lack of infrastructure making it impossible for some adults in rural areas to be captured or included. Secondly, more than of Nigerian adults do not have access to financial services. Some of them are unaware of mobile financial services. Nigerians still prefer transactions in cash to online transacts. Over 40% of Nigerian adults generate income from the informal sector”.*

In the same light, respondent  $\beta$  threw more light as to the types of infrastructure being referred to, saying:



*“Infrastructure has been a serious challenge for FinTech start-ups, not only in Nigeria but Africa as a whole. Since 2016 when the National Collateral Registry was launched, it has achieved very minimal success. The NCR is yet to have a major positive impact on FinTech start-ups, as Rahmon Ojukotola rightly pointed out. There is a lack of a database system in Nigeria. This is the major problem NCR wants to eliminate, and if this database system is even available, there is a serious problem of a lack of power supply to access the system”.*

A widely known roadblock to the wide-spread adoption of FinTech in Nigeria is the poor technology/digital infrastructure and lack of authentic customer information on digital media. The National Collateral Register is a “database” government initiative that was meant to ease the problems of database access in the lending sector, but the success of this has been marred by several factors of which infrastructure is key. Connectedly, FinTech development in the Nigerian Capital Market has also been generally slowed by the non-availability of data or lack of access to data in most cases. Adding to frequently low investor confidence and capital flight, digital infrastructure has also diminished the FinTech's interest in the Capital Market.

Poor connectivity in urban areas often results in failed transactions. Also, the good quality and low-cost services required to aid financial inclusion in rural areas are being hindered by the high cost of expansion to such areas as narrated by interviewee β thus:

*“Some of the challenges facing fixed broadband and limiting its penetration in Nigeria are poor electricity supply, pricing or high cost of deploying broadband infrastructure; the huge amount paid to pass a specific route or way either through grounds or property belonging to another person, the distance from the base station to users in rural areas, etc. These are serious problems. Saying that the ICT ministry is paying no attention to fixing these challenges may be false. Overcoming these challenges requires huge investment from the government”.*

Most rural settlements lack basic electricity. FinTechs have had to incur heavy expenditure to procure cloud infrastructure or run data centres, generate power, and/or access internet broadband that will power their solutions, and at the end of the day, pass these costs to the end-user (the consumer). On the other hand, the consumer is left to deal with high costs of transactions, and failed transactions as well, due to poor connection.

#### 4.4.2 Sustainability

Sustainability urges businesses to structure decisions as it relates to social, environmental, and human impact for the long-term, instead of the short-term benefits such as the following quarter's earnings statement. It motivates an organization to weigh up more factors than beside the immediate gain or loss involved. Gradually, companies have published sustainability goals and have set up targets for such goals. For a venture to be sustained, customer experience is key. Factors that have been identified in this research as affecting customer experience include trust, financial security (for all stakeholders), and this being all-encompassing (rendering a wide range of services) would have to be considered.

##### *FinTech sustainability.*

As mentioned in the previous section, the justification for any collaboration is the ability to bring a concerted effort of strengths together to create a stronger entity than either individual could achieve on their own. A strong and healthy collaboration between FinTechs and traditional banks will chase away the fear of insecurity, it will build more trust for the system, and it will as well offer more products and services, all of which will eventually count on the bottom line: sustainability of the sector. As deduced from the interviewees in this research, these are the strong points that will bring the Nigerian Fintech community home in terms of sustainability: Respondent  $\gamma$  was quoted, saying:

*“Lack of trust is the biggest issue that FinTech will continue to face in the country. Despite the innovative products offered by various FinTech Platforms, most Nigerians are scared to transact online because of the lack of trust they have in divulging vital information about themselves online like their BVN number, ATM Card number, passwords, address, etc.”*

FinTechs and the incumbents both have challenges and competitive advantages, making collaboration a win-win situation for both institutions. While FinTechs are known for agility, laser focus on customer experience, and less burdensome in terms of service processes, the incumbents bring in customer trust (Brand name), infrastructure, scale, and ability to handle regulations. The majority of FinTech firms suffer because they lack a brand name, customer trust, capital, established distribution infrastructure, and expertise in dealing with regulations. As a result, most of the successful FinTech firms focus on narrow segments but will have to struggle

with profitability and eventual sustainability. This is the response of a regulator ( $\lambda$ ) during the research interviews:

*"As pointed out by various experts, the future of the financial sector will rely on collaborations and mergers between banks and FinTechs with an aim to staying ahead of changing times".*

Collaboration between start-ups and incumbents/banks is needed to attain the next stage of high-level growth and to gain access to a higher customer base. This strong partner ecosystem is also critical in establishing better customer-centric products and services (Ibrahim and Joshi, 2017; Capgemini et al., 2018). Capgemini et al (2018) stated that a successful collaboration will depend on traditional institutions ability to assess and identify if the partnership candidates have the necessary characteristics important for a sustained success across four main factors: people, finance, business and technology, and the success will lie with those entities who can understand each other's weaknesses and strengths to improve the customer experience, and at the same time reducing operational costs.

Trust is a powerful tool of human behaviour and it's fundamental when it comes to relationships, be it between humans and institutions or human and another human. Lack of trust, as treated in this study, is three-dimensional:

- Lack of trust for FinTech by consumers
- Lack of trust for FinTech by investors.
- Lack of trust for government policies/regulatory bodies by investors.

The interview excerpts from 3 incumbents' bosses are seen below:

*"Lack of public trust and unclear regulations have always been the major challenge of the FinTech sector in Nigeria. Some Nigerians prefer traditional banks despite the difficulty in doing some transactions because they think it is safer. There are also too many licences required for an entrepreneur to participate in the FinTech industry. This has discouraged many potential investors".*

*"They are only scared of the high level of risk and uncertainty. Potential investors are sceptical to invest in the FinTech sector, like any other sector within the shores of Nigeria, because of these problems: lack of constant power supply, lack of security, high level of risk and uncertainty".*

*“However, uncertainty in government policy is one thing that even the government cannot predict. Examples are the Lagos State Government ban on Okada which affected investors such as 1st Ride, Gokada, and ORide, as you already know”.*

Non-Banking Financial Industry (NBFIs) are not seen as strong institutions like banks. The 5 leading banks in Nigeria, employing above 36,000 staff declare an annual revenue of over N2 Trillion, while the 5 leading NBFIs are struggling to attain 10% of this Figure (Gbadeyanka, 2017). The banks are also insured by Nigeria Deposit Insurance Corporation (NDIC) while NBFIs lack brand awareness that will appeal to consumers, which also results in why the consumers feel more secure in dealing with the banks. The lack of confidence in FinTech is also because there is no clear sense as to what the value proposition of the FinTech industry brings onboard.

The level at which FinTechs depend on data for every operation shows that a huge volume of proprietary and personal data is vulnerable to improper use and attack. The threat underscores the importance of cyber-security. These attacks are continually on the high rise and major FinTech organizations spend a huge part of their budgets on cyber-security to protect their data confidentiality and integrity. It is one challenge to protect the data and its another thing to deal with the cost associated with this process.

A collaboration between traditional banks and FinTechs is seen as a merit by regulators. Regulators play a major role in enabling innovation and therefore impact FinTech-incumbent/bank collaboration. The Financial Conduct Authority (FCA), UK's regulatory authority, has rolled out helpful policies and initiatives innovation, which includes a regulatory sandbox that has expedited FinTech growth in the United Kingdom. In the Asia-Pacific markets such as Malaysia, Singapore, and Hong Kong, the regulatory bodies are providing strong support which aids in accelerating FinTech growth. The quality and number of these organizations will propose alternatives for traditional service organizations to pick and select suitable collaborators. Japan however has more strict regulations for FinTech firms which have been deemed an impediment to the speedy growth of FinTech (Capgemini et al., 2018). Finally, as lack of knowledge has also been identified as a barrier to growth, the ecosystem and/or stakeholders have the responsibility of educating people (particularly the unbanked) on how the financial services

operate, clearly pointing out the requirements and the charges involved. In the same vein, the regulators are also expected to educate other stakeholders on available infrastructures such as the National Collateral Register and its uses as this has also proved to be a failed mission due to lack of knowledge.

#### **4.4.3 Financial Regulations and Compliance**

As the saying goes, regulators can make or break FinTech, but balancing consumer protection with creativity is no mean act. With technology being integrated into financial services processes, the regulatory challenges multiply. While facilitating businesses to convert to e-payments and operate digitally, these regulators also have the responsibility of protecting businesses and customers from financial crimes which includes money laundering and fraud. The most heavily regulated sector in the world is the financial services, this is the reason why regulation emerged as the number one concern among governments when FinTech companies are taking off. The Central Bank of Nigeria has the principal responsibility of financial services regulation in Nigeria. The following are the other regulatory bodies that regulate the provision of FinTech products and services in Nigeria, depending on the services they provide; and the Figure below shows a suite of FinTech regulations and policies in Nigeria since 2007:

- Central Bank of Nigeria (CBN)--- Primary regulator
- The Nigerian Securities and Exchange Commission (SEC)— Regulates investment and security businesses.
- Nigerian Communications Commission (NCC)--- Regulates FinTech businesses where their services include mobile phones pursuant to license framework for any value-added services rendered by NCC
- Nigerian Stock Exchange (NSE)
- Corporate Affairs Commission (CAC)
- Financial Services Regulation Co-ordinating Committee (promoting safe and efficient practices by financial intermediaries)
- Nigerian Deposit Insurance Corporation (NDIC)--- Protects deposit.

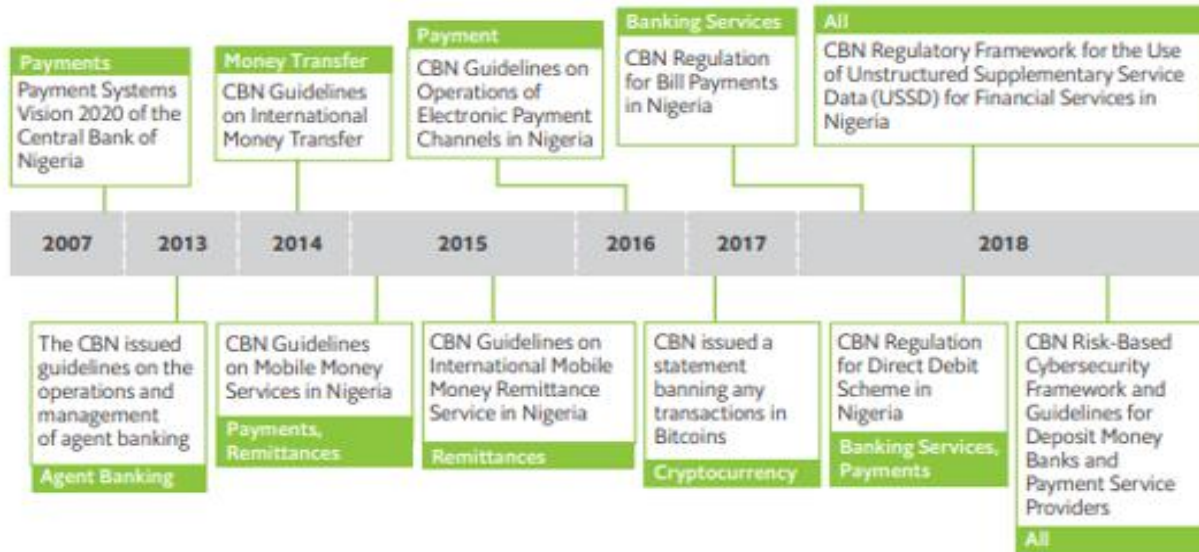


Figure 4.4.3: FinTech regulations and policies in Nigeria (Green, 2020)

The absence of a unified and direct regulation on FinTech in the country has created an erroneous notion that the FinTech industry in Nigeria is uncharted territory. Fintech regulation, from the outside, is supposed to be simple, but it is more complicated than can be imagined. Banks are on their edges as this innovation uses technology to reach out to more people and are diverting the earnings of the bank, and regulators are grappling to keep up, triggering panic and whispers about what type of policy to establish. See interview (Respondent ζ) excerpt below:

*"There are also too many licences required for an entrepreneur to participate in the FinTech industry. This has discouraged many potential investors".*

Consequently, FinTech firms in Nigeria operate with a "mishmash" of regulatory licences which includes Payment Terminal Service Providers (PTSPs), Microfinance Banks and Super Agents, Mobile Money Operators (MMOs), among others. As they differ in names, so also their processes and the rules that govern them. The degree of impact each licence has on an organization also differ. Additionally, some of them evolve much more quickly and sometimes catching the organizations unaware. Another complication is when a micro-lender adopts the MFB licence which has been a good solution, but now the requirements of that licence have been increased by the government, making it so high that acquiring it by a start-up will be difficult.

Again, because most of these licenses are legacy licences, there is always an overlap of functions. This opens an opportunity for those that acquired the licence to perform similar functions to an extent, with others that purchased the licence at a more costly rate (Eleanya, 2020).

Blockchain is a technology that is meant to revolutionize how financial transactions are carried out. Blockchain is even now becoming largely relevant to how banks should carry out international transfers, settlements, and trade finance amongst others. Its power and ability to simplify difficult processes, its record-keeping and verification is a huge discovery for cross-border transactions. CBN had issued a circular in 2018 reiterating that cryptocurrency such as Ripples, Bitcoin, Litecoin, Onecoin, Dogecoin, etc, and exchanges such as NairaEx are not regulated or licensed by the CBN (Ukpe, 2018). This point goes to buttress the point made by a financial services provider ( $\beta$ ) during my interviews:

*"A cryptocurrency is any medium of exchange, which uses what we call crypto-graphical functions to conduct financial transactions online through the internet. I support the CBN's stand on cryptocurrencies operation in the country. The CBN has made it known to all banks and the general public that the activities of the dealers in cryptocurrencies are not licenced by the CBN. In other words, their activities are not regulated by the apex bank. It is therefore very risky to partake in cryptocurrency. It has been used as a medium to dupe gullible Nigerians".*

In the same year, CBN in collaboration with NIBSS introduced a regulatory sandbox with the sole purpose of facilitating digital innovation by FinTech organizations. Presently, there is no clear definition of regulatory responsibility for FinTech themes. An example of such ambiguity is where some FinTech organizations obtain their licences from SEC, while others, from CBN. For such a sector to have the ability of sustaining operations, there must be a standard set of rules to abide by. With all these confusions, there is a high tendency of over-regulating FinTech activities without adequately understanding the technological offerings. Additionally, the time SEC uses for a single registration is seen as too long (Ukpe, 2018)

The purpose of the sandbox created by CBN is to enable innovation through allowing for experiments and speedy cycles of adjustments in a contained environment, void of full compliance with regulations. This sandbox operation is still yet to start.

Recently, the apex bank rolled out a regulatory framework for Sandbox operations which is intended to make it a possibility for the apex bank to keep up with the latest innovations by FinTechs and banks while creating a safe, reliable, and efficient payment system. See the breakdown of guidelines below (Benson, 2020):

- *To increase the potential for innovative business models that advance financial inclusion*
- *To reduce time-to-market for innovative products, services, and business models*
- *To increase competition, widen consumers' choice and lower costs*
- *To ensure appropriate consumer protection safeguards in innovative products.*
- *To clearly define the roles and responsibilities of stakeholders and the operations of the Sandbox for the Nigerian Payments System industry*
- *To ensure adequate provisions in regulations to create an enabling environment for innovation without compromising on safety for consumers and the overall payments system*
- *To provide an avenue for regulatory engagement with fintech firms in the payment space, while contributing to economic growth.*

RecTech (Regulatory Technology) was a means of deploying emerging and current technology solutions to minimize the rising cost of compliance and to improve internal reporting and supervisory capacity for the regulators (Gurung and Perlman, 2018). RegTech comes in two interlinked parts: for supervisory functions and compliance for the supervised. This technology will strengthen investigation and inspection processes and would also be an opportunity to digitize codes/rules that will ensure transparent prosecution and enforcement with the view of having the outcomes published, at a global standard.

Compliance with regulatory guidelines is still a global impediment in the industry, especially in the Nigerian financial industry. Irrespective, compliance issues in Nigeria need an improved momentum in the financial sector to ensure zero uncertainties in the rule of law for its valuable understanding and implementation.



A major constraint mentioned by basically every FinTech provider in the interviews is the high cost of licence as set by the apex bank and other relevant regulators. The license fees into financial services in Nigeria remain high with the minimum sum of \$139,000, just as it's been mentioned by the FinTech providers ( $\gamma$ ) interviewed (Green, 2020):

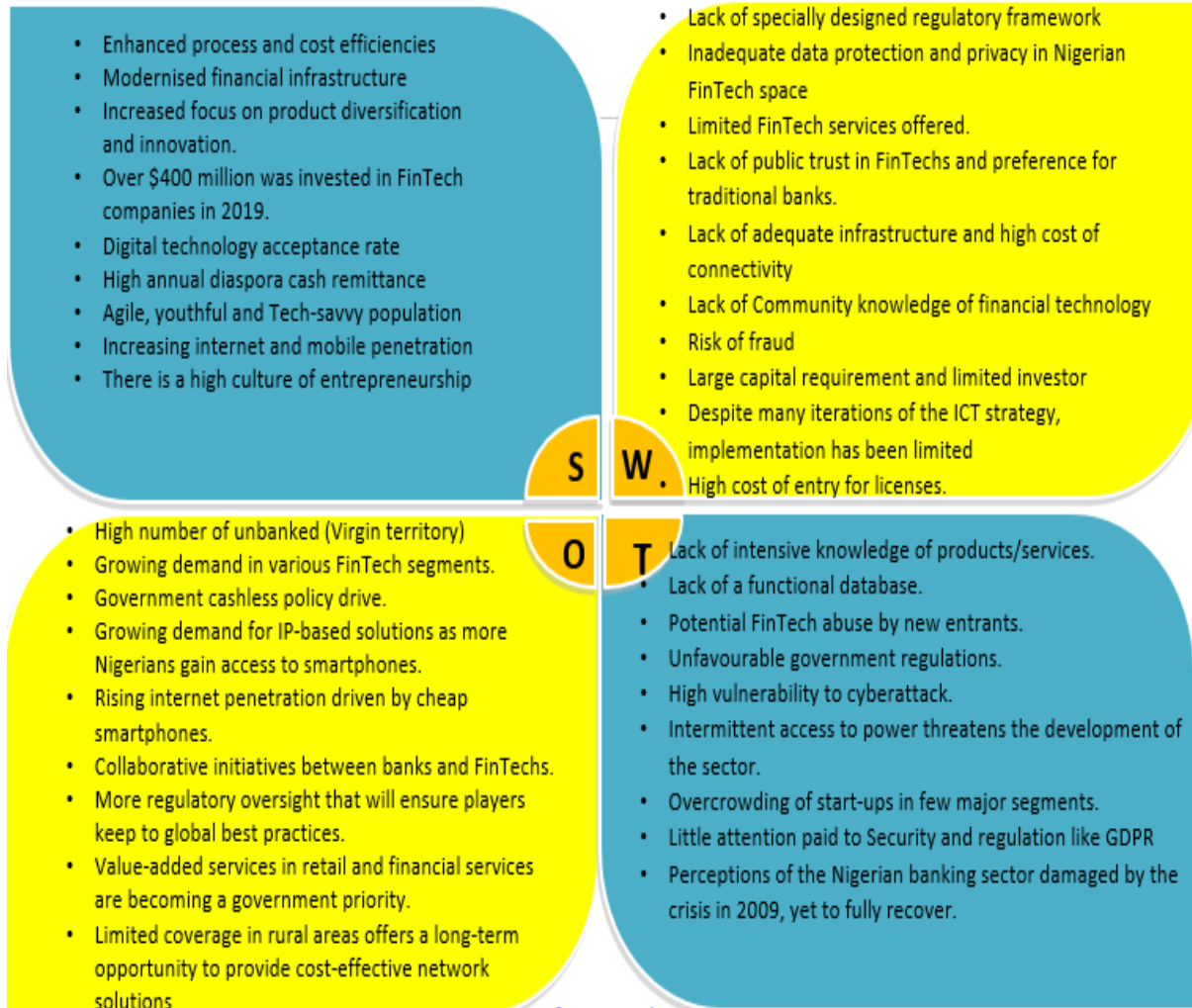
*"It is an impediment to financial inclusion. The cost of setting up a FinTech company in Nigeria is very exorbitant. The high cost of licence has discouraged so many potential investors. More licences need to be given to promote financial inclusion or at least accelerate the process. The capital requirement for the licences of FinTech companies imposes an impediment for start-ups. While the licence fees cost between ₦500,000 to ₦2 million, two licences have capital requirements of ₦3 billion and ₦5 billion. That is huge".*

*"For instance, we have the guidelines on mobile money services, guidelines on international money transfer, guidelines on international money remittance service, etc. Start-ups are required to pay over \$270,000 before obtaining license. A foreign International Money Transfer Operator (IMTO) wishing to operate in this country must have a minimum share capital of \$1 million and a list of licensed agents. The IMTO must pay a non-refundable fee of ₦500,000 and with a minimum paid-up share capital of ₦2 billion. The list is almost endless. It is frustrating for these companies".*

#### **4.5 Situational analysis**

To see the big picture of the studied environment, there is a need to analyze both internal and external context. PEST analysis will provide the external assessment which will lead to the review of threats and opportunities, while the review of strengths and weaknesses will determine the internal perspectives (SWOT). Summaries of both analyses are shown below:

## SWOT analysis



**Figure 4.5: SWOT analysis of Nigerian FinTech (Source: Author)**



**Figure 4.5.1: PEST analysis of Nigerian FinTech (Source: Author)**

#### **4.6 Summary of research objectives**

The conclusions on the research objectives are briefly discussed below to:

##### **Research objective 1: Evaluate and critically review and works of literature on FinTech businesses, their functions, and their basic operations, specifically in Nigeria.**

FinTech has come to stay in Nigeria. For several reasons such as the vacuum created by traditional financial institutions in being unreachable and underserved, FinTech has been well embraced by Nigerians. FinTech has bridged these gaps and has created a simplified way of living by virtue of its offerings. There are presently between 210-250 active FinTech companies, key stakeholders (telecom companies, banks, and the government), funding partners (research institutes, universities incubators, investors, and consumers), and enablers in the Nigerian

FinTech landscape. Of the global FinTech's several sub-segments, and still counting- still, on the rise, Nigeria has been able to embrace and build on some segments that have attracted a lot of attention, especially from foreign investors. Popular among the Nigerian FinTech landscapes are payments and remittances, Lending, wealth management, and insurance as summarized in the Figure below:



Figure 5.1: Popular Nigerian FinTech segments (Source: Author)

Cryptocurrency in Nigeria has pulled significant attention more than anywhere. Nigeria is also a tech-savvy generation that asks google about Bitcoin more than other peer countries

Despite the rising escalation of cryptocurrency, its legal status as well as its reception varies widely across jurisdictions. While some countries have restricted them or outrightly banned them, some have given permission for their trade and use (in several cases with caution) and others are yet to define their stance to them. With the increasing popularity of cryptocurrency, the relevant regulatory bodies in Nigeria advised Nigerians through the Security Exchange Commission (SEC), which is also a regulator in the Nigerian capital market, about investing into cryptocurrency as none of the companies or persons has been authorized or recognized either by it or any other regulatory body in Nigeria as an investment provider, deposit receiver or any other financial services, in or outside of Nigeria; further warning that no regulation or guideline has been established for cryptocurrencies in Nigeria and as such, no protection is available to investors or users for the virtual currencies if the promoting companies run out of business or the virtual currencies fail. The CBN also issued a circular to banks advising caution in the adoption or use of virtual currencies while stating that the virtual currencies are not a legal tender in Nigeria. Looking at how much attention it has received, CBN is still being waited upon to roll out a standard regulatory framework on cryptocurrencies.

The rise of FinTech has opened a world of opportunities and possibilities for small businesses With FinTech companies innovating through new values propositions which include flexibility

of products and better ways of addressing financial challenges as faced by middle- and low-income customers; they have also built the groundwork that resulted in a set of new financial services. Such groundwork includes easier digital identity verification and alternative lending platforms, and because of this, the United Nations have focused its attention on financial inclusion as an enabler of 8 out of 17 Sustainable Development Goals SDGs. This development has made the Nigerian Government interested in the growth and sustainability of FinTech as the main door to financial inclusion in the country. FinTech, and by way of the process, financial inclusion, has had so many benefits such as increasing financial literacy and awareness to the underserved and unreached population, making financial services affordable, especially for the middle- and low-income earners, amongst others. Traditional financial institutions have existed for decades in Nigeria; however, the financial inclusion level is very low, but with the right support, FinTech has the capacity of boosting scalability and convenience for the Nigerian population. Despite the economic instability, Nigeria has attained a commendable level of innovation in financial services, nonetheless, more still needs to be done with the combined efforts of FinTech stakeholders.

**Research objective 2: Study previous research and identify critical factors responsible for successes and failures of the general FinTech industry.**

Although a review of several successful FinTech jurisdictions around the globe resulted in numerous factors to be considered for a successful and sustainable industry, some factors are general and have been proven to work in any industry thriving for success. The ability of a FinTech organization to access capital, meet demand, source and utilize talents, and keep up with progressive policies and regulations that are built to enable the growth of FinTech, are directly related to the strength of the hub. With FinTech fast becoming a focal point for each country to kindle their economy, a new FinTech landscape is emerging. Consequently, the significance of having an innovative environment, regulatory capabilities, and availability of digital infrastructures is fundamental to the development of a sustainable FinTech. Both Brett (2017) and Cambridge Judge Business School (2018) have it that capital and regulation have important roles to play in the growth and sustenance of FinTech.

Two separate rankings of FinTech cities and hubs, which have the same cities and countries topping the list, were calculated based on three metrics: Quantity (This is the size of the FinTech

ecosystem and their supporting structures, comprising of a number of FinTech hubs, FinTechs, accelerators, co-working spaces, country's population, and global influencers), Quality (Performance-Impact, comprising of growth of FinTechs, size, events, international collaboration, website ranking and value generation), and Environment (Ease of conducting business, regulatory environment and critical mass, to include incentives for start-ups, regulatory interventions that will improve a competitive environment, payment portals, FinTech courses, and internet censorship).

Any FinTech jurisdiction aiming for sustainability can also learn from the results of the research by a business school, which came up with the following factors that could lead to venture failure: Operational efficiencies, Poor market understanding, Product/market misfit, Competition, Poor product development, and Misevaluation.

While a study of some FinTech firms and their business models also revealed that start-ups operate within regulated and complex markets and as such, right handling of regulatory requirements, focusing on customers' demands, trust, partnership with incumbents are of primary importance and help new entrants overcome entry hurdles, another school of thought stated that being innovative and having less to do with regulations, agile on service delivery, focused on individual segments of the value chain, i.e. keeping a low entry barrier and being interested in the volume of transactions and being lean on resources are the keys to success.

Conclusively, there is no common approach to FinTech regulation; different measures are adopted by regulators in trying to address technological innovation in the financial sector. A few international trends were discovered where adoption of various methods to gain a better understanding of FinTech and its associated implications included the establishment of dedicated consultation platforms and working groups, engagement of domestic regulators in cross-border coordination and cooperation in FinTech area, domestic hubs being instituted by regulators to promote the development of FinTech and, international and supranational organizations are increasingly becoming involved in FinTech regulation. Despite the multiplicity of approaches to regulate FinTech and the efforts to distinguish the leaders in this area, a lot of fundamental challenges remain unsettled, and the current regulatory frameworks have not developed enough to identify FinTech regulatory "best practices".

**Research objective 3: Recommend an effective framework for sustainable operations in the FinTech industry in Nigeria?**

Twenty interviews were carried out across different stakeholders of the FinTech ecosystem, comprising Regulators, Providers, and Users. This was in a bid to obtain different points of view from an assortment of Users, Regulators, and Providers of FinTech. At the end of the day, three broad themes emerged under which the Nigerian FinTech environment and operations were studied. The themes were financial inclusion, sustainability, and financial regulation and compliance. The main objective here is to propose a framework for FinTech success and sustainability in Nigeria. To do that, the factors identified as hindering the achievement of these three themes will be identified and studied as to how the impediments can be confronted.

Financial inclusion has over the last decade been a target chased across the world, and Nigeria still has 36.8% of its population financially excluded. Several reasons identified as impeding financial inclusion as well as growth of FinTech in Nigeria are summarized below:

- Lack of hard infrastructure ranging from broadbands, power supply, transport links and payment architecture, and soft infrastructure from marketplace practices to rule of law, regulatory frameworks, codes of conduct, prominent components of digital infrastructure such as cloud computing, internet broadband, and network infrastructure.
- Special funding and grants to find ground-breaking ways of getting services to clients in a way of reducing the transaction costs, optimize and improve the use of existing infrastructure.
- The low level of local participation of local investors in the Growth Funds in FinTech investment.
- The non-existence of various marketplace platforms where start-ups can provide and demonstrate briefs about their offerings to potential investors.
- Lack of a single source of regulation or guidance around funding for FinTechs through Venture Capital in Nigeria. What is obtainable is the varying requirements from one VC to another, which will obviously, lead to variation and uncertainty.
- A widely known roadblock to the wide-spread adoption of FinTech in Nigeria is the poor technology/digital infrastructure and lack of authentic customer information on digital media. The National Collateral Register is a “database” government initiative that was meant to ease the problems of database access in the lending sector, but the success of this has been marred by several factors of which infrastructure is key.
- Lack of incubator-accelerator innovative support system.

In driving for change in the financial sector, FinTech and sustainability run concurrently. For great sustainability to happen in the Nigerian FinTech sector, the following points have been identified in this study:

- Lack of trust for FinTech by consumers
- Lack of trust for FinTech by investors.
- Lack of trust for government policies/regulatory bodies by investors.
- High sense of insecurity and fear of cybercrime and data breach.
- Lack of recognition for NBFIs by consumers
- Institutional knowledge gap.

With technology being integrated into financial services processes, the regulatory challenges multiply.

The most heavily regulated sector in the world is the financial services, this is the reason why regulation emerged as the number one concern among governments when FinTech companies are taking off. The Central Bank of Nigeria has the principal responsibility of financial services regulation in Nigeria, and the below were observed as regards FinTech regulation.

- The absence of a unified and direct regulation on FinTech in the country has created an erroneous notion that the FinTech industry in Nigeria is uncharted territory. Fintech regulation, from the outside, is supposed to be simple, but it is more complicated than can be imagined.
- FinTech firms in Nigeria operate with a "mishmash" of regulatory licences.
- Blockchain is a technology that is meant to revolutionize how financial transactions are carried out, but there is no standard regulatory framework for cryptocurrencies operations.
- Compliance with regulatory guidelines is still a global impediment in the industry, especially in the Nigerian financial industry.
- A major constraint mentioned by basically every FinTech provider in the interviews is the high cost of licensing as set by the apex bank and other relevant regulators.
- The high cost of doing business which is due to lack of infrastructure and the service provider eventually passes down the infrastructural cost incurred to the final user.



#### **4.7 Validity and reliability**

Validity, internal and external, and reliability are salient in any research outcome, having measurements as the central concern for all. Even as they are ideals towards which every researcher strives for, it is impossible to have perfect validity and reliability.

Validity and reliability are ideas that help in establishing credibility and truthfulness of research and are important to the research.

Semi-structured and in-depth interviews can achieve a high level of validity/credibility were conducted carefully, using clarifying questions, probing meanings, and by exploring responses from a variety of angles.

Several researchers choose not to adopt the terms 'validity' and 'reliability' hence concurring with Smith (1983) on the incomparability among qualitative and quantitative research as it concerns ontological and epistemological assumptions, stating that such criteria should not be used in qualitative research. Researchers such as Wolcott (1990) expressed scepticism as regards the application of these concepts. Foucault (1972) and Kirk and Miller (1986) pointed out the importance of truth in accessing the quality of results attained in empirical qualitative studies.

It was suggested by Guba (1981) and agreed also by Onwuegbuzie and Johnson (2006) and Golafshani (2003) that in an Interpretivist paradigm research, validity and reliability be replaced by four criteria of trustworthiness and authenticity. They are dependability, credibility, transferability, and confirmability. This was challenged by Lincoln (1995) but have now been well recognized by several scholars in educational research (Merriam, 1998; Erlandson et al., 1993; Silverman, 2000; Bouma & Atkinson, 1995).

In all these, not all studies are expected to be innovative. Corroborative studies are vital and play a huge role in science. Informants' feedback is also another criterion, which is also known as confirmability. It signifies a regular audit that verifies whether what the researcher found in the collection and analysis was similar to what the participant wished to express, or if the studied phenomenon is satisfactorily portrayed. While some researchers have argued that the aim of interpretivist research is not for making statistical generalizations but rather to gain insights into specific social, educational or familial practice and process which exists within a context

(Conolly, 1998), some others such as Stake (1997) and Yin (2003) believed that generalizations can be possible in qualitative studies, stating that naturalistic generalization means the process of making generalizations based on similarity, and that generalization represents a replication logic that is similar to that used in experimental studies. Even as having not been readily accepted by some qualitative researchers, most qualitative studies contain making one or two types of generalizations, case-case transfer or analytical generalizations (Curtis et al. 2000; Firestone 1993; Kennedy 1979; Miles and Huberman 1994).

#### *Reliability and validity of present research*

Based on this, argument, this research had concluded that validity and reliability are essential qualities of qualitative research and a broad variety of terms associated with these criteria presents the need for and importance of new ideas and ways of considering and organizing the field.

It is important to create a reliable measuring tool for what should be measured. As this research involved open-ended questions, the answers were not affected by the researcher's point of view, unlike focused questions that lead to predetermined answers. Consequently, this research can be thought of as being a neutral translation of the researcher's purpose.

A handful of interviews were conducted in this research, and as such, there is a need to devise a means of ensuring the validity of the answers. Therefore, during each set of interviews (unstructured, semi-structured, and highly structured), the same questions were asked in a bid to check if the answers provided were constant as they relate to the situations presented. As a result, the same questions were asked across participants and their responses, as representatives of their companies' views, can be relied on. Hence it can be concluded that the responses were coherent. Additionally, the participants drawn from different companies had similar functions such as CEOs, Heads of e-banking, and heads of regulatory bodies to allow easy comparison of their responses.

#### **4.8 Summary**

The chapter began with a summary of the methodology used in this research and then the findings of the in-depth interviews carried out in this research. For a better understanding, the participants were listed against their portfolios. The common codes were identified with the help

of NVivo, an analysis software, and based on either the frequency of appearance, multi triangulation, or statement intent, codes that were relevant to the research were identified, studied and the main themes were created for further analysis and discussion. Financial Inclusion was one of the main themes and was identified as a major factor that was of common interest to both the FinTech organizations and the government. This is basically because it has been named an enabler of economic growth by the United Nations. Other themes treated were sustainability and Financial Regulation and Compliance. From the analysis and discussion, a situational analysis was conducted using the PEST and SWOT analysis. The chapter ended with the validity and reliability of the research conducted.

# **CHAPTER 5: CONTRIBUTIONS, CONCLUSION, AND RECOMMENDATIONS**

## **CONTRIBUTIONS, CONCLUSION, AND RECOMMENDATIONS**

### **5.1 Introduction**

This research is aimed at exploring the factors responsible for the success and sustenance of the FinTech industry in Nigeria and has painstakingly identified a variety of factors, both cultivated and emergent, that exists within the industry which has over time, shaped the outlook of FinTech in Nigeria. A summary of the research limitations and then recommendations for future research are mentioned and the chapter is concluded by the overall significance of this research and how it has contributed to the 'body of knowledge' in terms of FinTech success and sustenance.

### **5.2 Proposed Framework for FinTech Success and Substantiality in Nigeria.**

As a way of building a framework for sustainable FinTech operations, a solution will be proposed for each mentioned point above, that have been identified as impediments to success.

#### **Regulations/cyber security.**

- In as much as the regulatory environment looks flawed, it is well-regarded by academic experts and some companies for balancing customer protection and innovation. Reducing license cost and fees to encourage new players, opening access to capital markets and adapting to a simple legal environment that will raise competition. In addition, making certain that innovation is kept within regulatory purview by using sandboxes can support the next wave of FinTech growth in Nigeria. But at the same time, regulators must balance this with cybercrime fighting and ensuring cybersecurity and data privacy. A dedicated law that includes more specific rules on the moving but presently unregulated areas such as wealth management and insurance will also be beneficial to the growth and sustainability of the industry.
- Build robust RegTech platforms that can investigate processes and inspect strength, as well as create codes/rules that will ensure enforcement and prosecution with the intent of publishing the outcomes at international standards. It should also be targeted at performing other functions such as managing, licensing, registrations, and approvals of FinTech businesses, as a single point process. Such directory service can also serve other parties such as investors in accessing valuable information they require about FinTech in Nigeria.

- Redirect the government policy towards financial strengthening by establishing links between urban and rural, non-banking and banking, informal and formal financial systems, as well as financial product diversification.
- There is a need for SEC to establish a clear FinTech agenda and vision.
- Shorten the registration timeline to encourage investments and capital market participation.
- Strengthen, rationalize, and restructure supervisory and regulatory frameworks.
- Review global privacy regulations for a better adaptation in the Nigerian environment. Example of such could be the EU GDPR.
- Enforce and regulate competition rules to prevent any data providers' monopoly.
- Revise existing policies to reflect realities in the innovation world which will encourage data sharing in a secure manner. This is intended to strengthen any FinTech oriented security and privacy policies.
- A uniform or a one-size-fit-all framework may prove unwholesome and biased. This will also suffocate FinTech development. As such, considerations necessary to outline peculiarities and types of frameworks should be strategic. This will require that the government/regulators develop clear and tailor-built licensing/framework procedures for different FinTech solutions (segments) to avoid any "mishmash".
- **Blockchain:** It is transparent by design and could be a mechanism that will give regulators instant, full, and direct clarity of information in financial institutions. According to the design, blockchain transactions are documented on the distributed ledger and as such, a secure, priceless, permanent, irreversible, and comprehensive financial audit trail will exist for regulators to inspect. Instead of "reporting", it could be the regulator's participation in a properly permitted transaction-related distributed ledger. The transactions viewed in near real-time will give the regulators a better risk-system analysis. Government regulators should also decide to classify cryptocurrencies as either commodity, securities, or currency. A good example of where blockchain technology can be a solution in the Nigerian public sector is in the procurement process. Public procurement is a central function of government activity that is believed to accelerate economic growth and development if handled transparently and efficiently. The challenges identified in some recent research revealed that corruption, lack of

transparency, structural and communication are basically responsible for the (Akaba et al., 2020)

### **Infrastructure.**

- The utilization of the National Collateral Register which was created to solve the problem of a central database has been labelled a failure mostly due to lack of infrastructure. Infrastructures required for successful FinTech operations (both hard and soft) are generally provided by regulators and other agencies under the control of the government. As such, the government is in a vantage position to support this industry by subsidizing and ensuring adequate supply. Some of these important infrastructures required include power supply (Power Holding Company and Transmission Company of Nigeria), cloud computing, internet broadband (Nigerian Communications Company), and network infrastructure.
- Stimulate financial inclusion plans by providing access to banking services in remote regions.

### **Funding.**

- Simplify capital raising processes for FinTechs that have been certified and confirmed genuine.
- Create avenues where High Net-worth individuals in Nigeria can invest through the capital markets to attract local investors.
- Provide interest-free grants and "seed funds", and initial financial support to private equity or venture capital, incubators, and banks to encourage small business investments.
- Address the poor governance and low capitalization of financial intermediaries. Deal directly with the regulatory body in charge to eliminate middlemen cost.

### **Collaboration.**

- A strong and healthy collaboration between FinTechs and traditional banks will chase away the fear of insecurity, it will build more trust for the system as well as offer more

products and services, all of which will eventually count on the bottom line: sustainability of the sector

- Collaborate with financial institutions and banks to develop a well-structured financing scheme that will strengthen brand name, build customer trust, offer cheaper and more accessible real sector, or credit.
- Collaboration with the apex bank: to revisit and simplify regulations that will make registrations like BVN sufficient to open accounts such as insurance, credit space, capital market, and the likes.
- To tackle the issue of trust, customer education is key. Partner with cultural and religious bodies on sensitization issues.
- Collaborate with educational institutes to create an industry-relevant curriculum such as financial literacy courses for retail customers and organize seminars targeting financial literacy at different jurisdictions of the capital market, as well as to deepen training and research in engineering and software skills.
- Government-led awareness campaigns on the benefits of investing in the financial sector, and particularly encourage introduction and development of FinTech led innovation which will enable broader market participation and improved user experience.

#### **Building trust/Cybersecurity.**

- Fintech companies should be encouraged to process only necessary customer data, and only when these customers are making use of their services.
- FinTech companies should embrace best practices in the security of information and entrench security into their technology design and product plan to boost modularity and experience.
- Build clear procedures for responding to cyber incidents which should consist of processes used to dynamically recover from any of such events, as well as reporting security violations.
- Stakeholders should leverage on the national sandbox created by the government regulators to make it wholly effective instead of building several ineffective ones.

#### **Operational Support.**

- Provide incentives for star-ups and the incumbents as well, such as tax holidays and other attractive packages to attract more business.



- Create government /regulators' owned accelerator/innovation hubs, to encourage, capture and render support for new entrants, as well as boost talents, as Nigeria is known to be overflowing with such.

### **Feedback.**

- Finally, feedback is always important for the improvement of any business. As such, the government should create a FinTech office that will receive valuable feedback from stakeholders for developmental reasons, manage relationships between stakeholders, provide regulatory and other relevant information for new entrants, provide advisory services and support to the industry, and manage communication and dissemination of relevant information that concerns the industry.

## **5.3 Contributions to Research**

This study has made a few contributions to the research methodology, policy, and to knowledge, as seen below:

### **5.3.1 Methodological Contributions of Research:**

This dissertation has shown the value of in-depth interview approach to financial institution's research. The study gathered data from actual practices and opinions in different arms of the financial institution. This differs from the common types of research which are always based on statistical findings and reports of Figures in the industry. Using interviews in this study has helped to understand the level of commitment by stakeholders to ensure the success and sustainability of this industry in Nigeria. I had moved from unstructured interviews, which gave me the general idea of the state of the industry, to semi-structured and then highly structured interviews. This was necessary because the ecosystems have several types of stakeholders and I needed to understand where and who has the required information that will help in achieving the research objectives. The responses of these in-depth interviews have uniquely identified the gaps as major concerns that need to be addressed to attain a healthy growth in the industry. It has gone further to demonstrate that while documents or literature review is valuable in identifying these gaps, additional value can be obtained from direct observation of current practices, through the eyes of the respondents. Thematic analysis was used for the transcribed interviews, which

incorporated hierarchical coding to initially identify some broad prior terms and then gradually narrowing them to themes that were generated through iterative data analysis.

The most rewarding aspect emerged from the primary research. Through this study, my research skills, especially the interviewing skills, has greatly improved. Even as the topic was quite wide and required a lot of study, arranging the interviews through persistence and networking was a vivid experience, availing me the opportunity to directly hear the concerns and challenges from the top executives of the industry which has given me a deeper understanding of how much pressure they face, and also, a feel of what it is like running such organizations. This has played an important part in my personal development: gaining different insights, talking with professionals drawn from various corporate levels.

Developing an iterative process of building a qualitative research methodology can be challenging to deliver in academic forums that expect a detailed and pre-planned approach that is more suitable to a qualitative research design. In this study, a primary design was established in order to meet institutional requirements, which arose in a response to a continuing review of substantive and methodological literature, researcher's reflexiveness and response to findings. I have, in this research, demonstrated that qualitative research design does not just involve the mechanistic application of a set of methods for data collection and analysis, but also complex decision-making (Barbour, 2001). The study aims and objectives, research questions and the epistemology informed the choice of research methodology, which gradually refined these purpose and questions until a unique design of data collection and analysis was created.

This study has also presented a methodological approach to a missing phenomenon in research which has been highlighted by social entities, through reviews of many articles, blogs and magazines which is also aimed at encouraging researchers to observe current situations of FinTech, placing more focus on media sources, as this has helped me in determining whether new directions or topics can be pin-pointed in professional press.

### **5.3.2 Policy Contributions of Research:**

This study has contributed to our understanding of how a framework for a successful and sustainable and can be arrived at through academic research. The contextualized framework for a better FinTech industry in Nigeria shows how the identified factors are key to the achievement

of success. It has shown that compliance to regulated and tailor-made policies and rules by FinTech players will ensure that the industry is efficiently and fairly operated. Furthermore, the findings of this research add to the policy by suggesting collaborations between stakeholders: Regulator-regulator, traditional banks-FinTech players, FinTech players -regulators for effective control and growth of the market. It has also suggested more involvement from the government/regulators by way of offering the required support for the FinTech players through providing the required infrastructure to reach out to more of the unbanked population and uncharted territories that have been impossible to reach due to lack of infrastructure or high cost of connection.

In as much as regulations are perceived as an impediment to success, this framework has also suggested a balancing of regulation in a way that it will not be a barrier to growth, as well as fight fraud and/or cybercrime. This can be in terms of license conditions and legalizing the use of cryptocurrency in Nigeria. It was also identified that cryptocurrency can be a force for good with effective monitoring and effective collaborations, and so, classifying it as a commodity, property or currency will be the first step towards understanding its operations, although classifying it as a currency is not encouraged. In this research, trust has been identified as a big factor in building a sustainable FinTech organization and has been identified as the reason why new projects of financial inclusion such as Agent banking has not been successful, even though it took banking to customers doorsteps. Ways of building consumers' and investors' trust have also been proposed in the framework.

This research gives a guide to policymakers on how to run the FinTech industry and is also crucial for developing new strategies as well as adapting to a new environment. During the study, I pointed out that countries with well-developed economy with readily available supporting infrastructure and flexible regulations witness more FinTech start-ups development. A typical example of a case where FinTech can efficiently solve the problems in a developing country is M-Pesa in Kenya. Nonetheless, many FinTech services do not just operate on simple mobile phones but necessitate the use of smartphones, which are generally unaffordable in such places. Consequently, providing sustainable and affordable technology, as well as appropriate infrastructure is critical in achieving sustainability, and eventual financial inclusion.

This research has also confirmed that regulatory sandbox acts as a catalyst for growing investments in the industry. Its introduction has provided a policy effect that continue to reduce

institutional and legal risks by way of eliminating insecurity through adoption of inclusive and flexible business models in the FinTech industry

Contributions were made with the proposal of a standard framework drawn from the most common themes of the research. Previous research have only suggested certain trends in the framework-partnership, relaxing regulations, focus on specific customer segments-but did not explicitly elaborate on all such strategies mentioned in the framework. FinTechs, as well as traditional finance service companies can adopt this framework which is all encompassing. This framework can serve as a reference for building successful business models for the various sectors in the industry. This can also be beneficial to other service sectors that have the same kind of expansive traditional environments by adopting to a customer -centric establishment. The success of FinTech does not necessarily mean that they serve an entirely new market or conduct themselves differently, but to focus on the vital factors as mentioned in the outcome of this research.

### **5.3.3 Knowledge Contributions of Research:**

The outcome of this research is recommended for further academic studies so that individuals who do not have FinTech knowledge will be able to respond sufficiently to technical questions raised by any prospect. Findings from this research highlight key areas that will be beneficial in academics such as in the comparative literature review and the methodology used to collect and analyze data. FinTech is the buzz word now and its success is being pursued globally by both the developed and developing nations, as such, it can also be used as a case study by any aspiring nation, as well as for training purposes where it exposes the reasons for failure and success of this venture or prospects.

As the research is of the complete FinTech ecosystem which has several stakeholders with different roles, this research is a viable tool in training both new prospects and incumbents, exposing stakeholders to roles other than theirs in the ecosystem, and proffering possible solutions to some tasking roles.

The FinTech industry is fast evolving and leaving a long trail of changes on its track. This research has greatly contributed to existing literature on FinTech industry and its challenges in Nigeria by extending on the current knowledge of nouvelle and trending factors that drive

innovation, and by placing FinTech in the context of the existing research. The study also serves as a basis for future research on the FinTech trend as this research has provided an overview on how this trend has evolved and eventually developed, as well as revealing the main ‘building blocks’ of FinTech.

Although the study is particularly solution-seeking to the Nigerian FinTech space, this research has also highlighted the significance of the novelty of FinTech to numerous professionals, home and abroad, that are seeking to explore (Information systems, finance, and social studies), as well as researchers, financial markets participants, media and lots more that seek a retrospective view of FinTech origins and/or activities.

Modern-day qualitative research is becoming more credible and formal with methods such as where an empirical finance academic would struggle to comply with: cases of keeping a record for every variable they have used, and then discarding them in predictive return studies. However, this does not require replacing the traditional empirical finance work with qualitative research methods but can rather improve our present research practices in finance as a helpful prelude or supplement. Researchers contemplating the integration of qualitative methods are met with a diverging part of design choices that remodel research credibility and quality.

#### **5.4 Research Limitations**

The researcher had during this research tried to envisage the research limitations in advance and then planned to minimize such limitations. The expected limitation of a snapshot or short-term research such as this is in the time management. This is as a result of the time allowed for such research. A lot of changes were made to the interview dates because of the tight schedules of the interviewees and then the global pandemic that caused a lot of organizations to lockdown.

The unstructured and semi-structure interviews permitted participants to expatiate on their thoughts about FinTech success. This is a method that will have to rely on the researcher’s interpersonal skills and ability to establish a rapport with the participants which was a bit challenging on some occasions. Multiple requests were made to several organizations to secure the appointments for the interviews. However, all planned interviews were eventually completed at later dates. Due to time constraints, distance, and funding, the interviews were conducted online via both WhatsApp and Skype video calls. Gathering and analysing the data demanded a

substantial amount of time and effort. Transcription of the interviews also took longer than the anticipated time.

A general look at the financial services industry shows that the top management personnel, who are my main target for the interviews, often have very tight schedules, and getting their availability for interviews was very difficult and as such needed careful planning and patience. Owing to the technical buzz word 'FinTech' being currently considered as a popular and innovative trend in the market, little or no research has been done on how it can be sustained for a long time in Nigeria. This was somewhat of a limitation to the development of the literature review.

### **5.5 Recommendations for future research**

The findings of this research have provided numerous pointers and insights for future research.

1. Due to time constraints, it was impossible to conduct a longitudinal study. Such research would be beneficial in examining the effects or changes, over a long time, as certain factors will have more impact on the stability and success of FinTech when under varying conditions.
2. Secondly, as the FinTech ecosystem has a huge variation of stakeholders, with several types of products and services, a larger sample size that will establish a wider view and understanding of FinTech activities as seen or experienced by various stakeholders, and of course this will take a longer period of research. Our understanding of the success of FinTech would benefit from such longitudinal research that seeks to examine the sustainability factors for Nigerian FinTech.
3. As this is continuous research, this piece is not exhaustive. Its modest goals is to inspire a formal discussion on the legal implications of cryptocurrency inventiveness; to stimulate the Nigerian financial regulators towards a substantial regulation for virtual currencies, and to boost the spirit and thoughts towards international collaboration on cryptocurrencies. For further research, researchers might find it persuasive and interesting to pursue some proposals for a substantive regulation to govern cryptocurrencies, to widely study the available tax classifications for cryptocurrencies, and to consequently do

a detailed analysis with an aim of making recommendations even up to the international level.

4. With the continuous emergence of new FinTech models, a further research on its adaptation and sustainability will yield more representative results when conducted on a larger sample size, incorporating the diverse views of stakeholders from the various emergent arms of FinTech industry.

## **5.6 Conclusion**

The evolution of FinTech has significantly changed how the world is perceived as compared to the last decade. With new developmental technologies rolling out every day, customer behavior has been changed by replacing traditional business models with these technologies. This movement has applied to various sectors and especially the financial sector. With the rise in financial inclusion, FinTech has taken over various financial services, giving it better experience and affordability. Despite being recently established and constantly facing lots of challenges due to regulatory restrictions, lack of basic support and infrastructure that threaten its sustainability, it has found itself on a firm ground for building future financial solutions.

This research has studied both theoretically and empirically numerous facets of FinTech challenges, success, and failure factors from the perspective of all stakeholders in the ecosystem. In particular, key subjects consist of the study of global FinTech hubs and factors that have been responsible for their success, and an empirical study of Nigeria to identify what has worked well and what is hindering/or likely to hinder its growth and sustainability.

In this study, I examined a unique context using in-depth interviews and thematic analysis of data to explore certain factors that affect the progress of FinTech growth in Nigeria. Armed with background knowledge of general FinTech success factors around the globe from the literature reviews, this research has gained a good response from the interviews, enough to propose a framework that can be executed for better FinTech operations and success.

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## APPENDICES

### Appendix 1: Blockchain evidential rules by country

#### North America

##### Canada

- The National Research Council of Canada (NRC) announced that it had built an Ethereum blockchain explorer to experiment with transparent administration of gov't contracts, and reliably sharing data with the public.
- Months later, the Government of Canada began exploring the use of additional blockchain technologies, namely IPFS.
- The NRC's Industrial Research Assistance Program (NRC IRAP), hosted a blockchain kickoff session and unveiled its plans to test the viability of blockchain technology in administering the Program's Contribution Agreements (innovation funding) with Canadian small and medium-sized enterprises. The experiment would provide a first real-use case of its kind for the government and other public institutions.
- The Government of Canada (GC) is using blockchain technology to issue project-based employees with a kind of digital CV, providing "a permanent, self-owned and secure record of their skills and experiences."
- The Governments of British Columbia, Ontario and Canada formed an open source collaboration, the Verifiable Organizations Network (VON). VON leverages self sovereign identity to enable organizations—and the people running those organizations—to conduct business online in a trusted manner.

##### Mexico

- The Mexican government is planning to conduct a public procurement procedure on a blockchain network.
- The Digital Government Unit – Ministry of Public Administration of Mexico launched HACKMX, a project that leverages blockchain technology to track and validate bids for public contracts.

- Former Mexican President Vicente Fox is working on a project which integrates blockchain with local agricultural activities. Fox has investigated applications of blockchain to increase transparency and reduce corruption within the Mexican government.
- The Mexican government passed legislation entitled the Financial Technology Institutions Law (Fintech Law), which aimed to promote financial inclusivity and technological innovation through a collaboration between Mexican regulators, legislators, and further important private actors in the field. This law also introduced a framework to regulate the use of cryptocurrencies.

#### United States

- The Defense Advanced Research Projects Agency (DARPA) is creating a blockchain cybersecurity shield — a blockchain-based platform to transmit secure messages or process transactions that can be traced through numerous channels. The application will be used in different to facilitate communication between units and headquarters and transmitting information between intelligence officers and the Pentagon.
- The House of Representatives passed legislation, the “Advancing Innovation to Assist Law Enforcement Act” (H.R. 2613) which calls for the Financial Crimes Enforcement Network (FinCEN) to conduct a study on the use of blockchain, AI, and other technologies.
- Section 1646 of the 2018 National Defense Authorization Act (H.R. 2810) requires that blockchain be assessed for military employment.
- The Naval Air Systems’ Fleet Readiness Center is working on a permissioned blockchain prototype to track aviation parts throughout their life cycles.
- The United States Air Force implemented the Blockchain Approach for Supply Chain Additive Manufacturing Parts (BASECAMP) project to secure long value chains with distributed ledger technology.
- The United States Department of Health and Human Services (HHS) invested \$49 million to build A.I. and blockchain solutions to reduce operational backlog and costs.

- The Blockchain Trust Accelerator (BTA) at New America launched a two-year collaborative endeavor to pilot a blockchain-powered system to track the health and well-being of factory workers.
- The United States Postal Service (USPS) filed a patent to incorporate blockchain technology and digital certificates to authenticate user information.
- The Department of Homeland Security issued a series of grants to explore innovative solutions that utilize blockchain technology to secure digital identity management.
- The Food and Drug Administration launched a pilot project that explores the utility of blockchain in the secure tracking and verification of prescription drugs.
- In 2014, the United States Internal Revenue Service classified digital currency as property.
- Arizona enacted a law (HB 2417) explicitly granting smart contracts the same legal effect, validity, and enforceability as their standard contract counterparts.
- The Delaware Blockchain Initiative launched in 2018. The same year, Delaware officials began exploring incorporating blockchain into different components of corporate filing processes. Now, Delaware uses blockchain technology to streamline business registry. The Uniform Commercial Code (UCC) blockchain automates the release and renewal of UCC filings and associated collateral.
- Wyoming legislature passed legislation (SF0125) that amended Article 9 of the Wyoming Uniform Commercial Code to define digital assets that utilize blockchain and distributed ledger technology.
- The Illinois Blockchain Initiative tested a blockchain-based birth registry pilot, to investigate a secure, self-sovereign identity for Illinois citizens.
- The first government-sanctioned, blockchain recorded real estate deal in the United States took place in Vermont, due to its proactive stance on distributed ledger technology.
- Illinois investigated five blockchain projects, including property deed recording, academic credentialing, health provider registries, an energy credit marketplace, and securing vital records.

## South America

### Argentina

- The Ministry of Production and Labour’s Accelerator Program is poised to offer \$50,000 grants to support blockchain-based startups.
- A blockchain-based digital identity for inclusion project has been announced in Argentina, with goals to improve citizen access to governmental services.

## Europe

- The European Commission launched the EU Blockchain Observatory & Forum to accelerate blockchain research and innovation to help position Europe as a global leader.
- The European Horizon 2020 program invests up to €300 million in projects supporting blockchain projects across the European Union.

## Austria

- The Austrian government debuted the new Research Institute for Cryptoeconomy, which will support blockchain research projects through an €8 million fund.

## Denmark

- Denmark’s Liberal Alliance party was the first local association in the world to perform an internal election utilizing blockchain technology.

## Estonia

- The Estonian government has been testing the technology already since 2008 and was the first country to use blockchain on a national level.
- Since 2012, blockchain has been in operational use in Estonia’s registries, including judicial, national health, commercial code systems. The Estonian government has plans to extend DLT use to other spheres such as personal medicine, cybersecurity, and data embassies.
- The government-created e-Estonia program boasts 99% of services held online, 44% of Estonians use online voting, 98% of tax declarations are filed online, and 98% of

Estonias have a digital ID, with 700+ million digital signatures. 99% of health data is digitized and stored on a blockchain,

- Estonia has the second-fastest court proceedings in Europe, with the second shortest amount of time needed to resolve civil, commercial, administrative, and other cases.
- The Estonian Ministry of Justice leveraged blockchain technology to create the e-Law system, an online database that allows the public to read every draft law submitted since February 2003.

## Georgia

- The Republic of Georgia launched the first-ever blockchain land-registry system with a goal of strengthening property owners' rights, enhancing citizens' trust in government, and reinforcing data security. There are now more than 1.5 million land titles registered, with an average of 3 minute registration time.

## Germany

- The Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH established a 'Blockchain Lab' to leverage the potential of blockchain and related technologies in efforts to reach the United Nations Sustainable Development Goals.
- The German government released a Blockchain Strategy of the Federal Government; the strategy aims to exploit the opportunities offered by technology and mobilize its potential for digital transformation.

## Ireland

- Ireland's Minister for Finance published a discussion paper on virtual currencies and blockchain technology. The government also announced the creation of an internal working group that deep-dives into regulatory approaches to cryptocurrencies in other jurisdictions.
- Blockchain Ireland is an initiative partially funded by the government to help promote and share information on blockchain in Ireland.

- Blockathon Ireland is a hackathon hosted by the Department of Public Expenditure and Reform in association with the Department of Finance that aims to identify and analyze potential real-life use cases in public services.

#### Italy

- Italy joined the European Blockchain Association, and subsequently amended regulations to legally define the concepts “blockchain technology” and “smart contracts.”

#### Latvia

- The ministries for Estonia, Latvia, and Lithuania published an MOU, which includes “supporting the development of capital market innovations and new technologies with a consideration for regional FinTech solutions, e.g., distributed ledger technology.”

#### Lithuania

- The Central Bank of Lithuania launched a sandbox to develop blockchain-based products and solutions. Over 21 registrations were logged from several countries in the European continent.
- The Central Bank of Lithuania released updated positions on virtual assets, detailing when and how they may be used for payments.

#### Luxembourg

- The Infrachain project creates an on-top governance framework allowing blockchain applications to become operational in the current regulatory environment.

#### Malta

- The Malta Business Registry will adopt blockchain technology with an aim to increase efficiency and modernize business processes.



- The Maltese government piloted a blockchain-based credentials program that instantly verifies academic credentials.

#### Netherlands

- The Netherlands Enterprise Agency in the Municipality of Zuidhorn won the Small Business Innovation Research (SBIR) competition with a project that brings financial support for children living in poverty.
- The City of Groningen launched a proof of concept to help citizens regain financial control over their debts through a variety of services, including debt assistance, debt prevention, income management. The project stores financial status changes of GKB clients in a private blockchain, along with invoices and income payment information of external partners.
- The Pension Infrastructure project leverages blockchain technology to create a pension administration system for all ecosystem partners.

#### Slovenia

- - The government seeks to explore the technology of the distributed ledger, both at the country level and as part of international groups; it is included in the digitization plan of the country called Digital Slovenia 2020 as a separate initiative of Blockchain Slovenia.
- The Slovenian government, in cooperation with the startup Eligma, launched the country's Bitcoin City.

#### Spain

- The Ministry of Energy, Tourism, and Digital Agenda co-financed project TrustForWills, which facilitates end-of-life contracts for users of digital services in Madrid.
- The government of Catalonia launched a self-sovereign identity project, called IdentiCAT. The 'IdentiCAT' can be privately managed by citizens.

- The City Council of Valls debuted the Municipal Data Portal project, which publishes data sets and resources in the local municipal web portal and on the blockchain–via IPFS.
- The City Council of Valls is expected to launch the Open Data Portal, which simultaneously publishes data sets and resources in the local municipal web portal and on a distributed network based on IPFS.
- Valencia’s port utilizes blockchain technology to bring transparency and security to the supply chain.

#### Sweden

- The Swedish land registry (Lantmäteriet) is testing real estate transfers and other multi-party transactions on a blockchain.

#### Switzerland

- In partnership with ConsenSys’ uPort, the municipality of Zug tested a government-issued self-sovereign identity on the Ethereum blockchain.

#### Ukraine

- The Ministry of Finance announced plans to define a legal status for cryptocurrency in Ukraine.
- The government of Ukraine has partnered with a tech firm to move government data to a blockchain platform.
- Ukraine’s Ministry of Finance piloted trial auctions using blockchain technology.

#### United Kingdom

- In partnership with ConsenSys Codefi, Her Majesty’s Land Registry set up a digital asset management platform to explore the potential of blockchain technology in the U.K. real estate industry.
- The U.K.’s Food Standards Agency (FSA) completed a pilot to track the distribution of meat in a cattle slaughterhouse using blockchain. This trial marked the first time that

blockchain technology has been used as a regulatory tool to ensure compliance in the food industry.

- The Isle of Man launched sandbox-development systems designed to help firms overcome emerging regulatory hurdles. The Isle of Man aims to attract more blockchain companies to the island.
- The largest port operator in the United Kingdom, Associated British Ports (ABP), is testing the use of blockchain to facilitate trade through its marine terminals.

## Africa

### Ethiopia

- The Ethiopian government is exploring possibilities for the use of blockchain in the agricultural sector.

### Ghana

- The government of Ghana, in partnership with Bitland, launched a pilot project to register land on a blockchain. Upwards of 78% of the land in Ghana is unregistered. The project has now been trialed in 20 communities in Kumasi.

### Kenya

- The government of the Republic of Kenya issued a retail bond, M-Akiba, via a mobile platform. M-Akiba allows users to purchase government bonds in very small amounts, without the need for a bank account.
- Kenya Blockchain & AI Taskforce forms, and advises the government to replace cash with digital currency.

### Liberia

- Liberia's Ministry of Finance signed an MoU with a leading blockchain company to digitize government services and create e-government platforms.

## Mauritius

- The government of the island Mauritius, has created a Regulatory Sandbox License (RSL), allowing outside investors to develop blockchain-based solutions under the supervision of the Board of Investment of Mauritius.

## Nigeria

- Nigeria’s road transport union launched a blockchain-based passenger manifest system (PAM).
- The speaker of Nigeria’s House of Representatives called for a legal framework for cryptocurrencies.

## Rwanda

- The Rwandan government is utilizing blockchain technology to architect a “paperless, secure, corruption-proof” system. The first pilot project will center around land registry.

## Sierra Leone

- The government of Sierra Leone, in cooperation with non-profit Kiva, launched a blockchain platform for credit history. The governmental agencies provide biometric data to identify applicants, while the platform offers a digital wallet and a distributed ledger to store the digital loan transactions.
- The government of Sierra Leone plans to fully adopt a blockchain-enabled national identity system by the end of 2019.

## South Africa

- - The South African government has established a crypto assets regulatory working group to investigate blockchain-related concepts.

- South African National Blockchain Alliance (SANBA) was formed to establish a partnership between government, business, academia, and civil society to support the use of blockchain technologies within the South African context.
- The Center for Affordable Housing Finance in Africa (CAHF) has piloted a working example of a blockchain-based property registry.

#### Tanzania

- Tanzanian government eliminated 10,000 ghost workers from the public sector by utilizing blockchain technology to audit the public payroll. This step has saved ~4.5 billion Tanzanian shillings (USD 195.4 million), which are paid on a monthly basis to the ghost workers.

#### Uganda

- The government of Uganda partnered with CryptoSavannah to create a proof of concept for land titles registry.

#### Zambia

- The Lusaka City Council (LCC) signed an MOU with a blockchain platform to develop and deploy a land governance program, and support property title issuance.

#### Asia

##### China

As China has over 500 reported blockchain projects registered, many being government-led, we will select a few for this list.

- - Xiong'an launched a 6,667-hectare afforestation project. An online platform based on blockchain, big data, and other high-tech traces and manages the lifecycle of the trees.

- - The Management Committee of Xiong'an New District officially announced the introduction of blockchain technology in government management to establish a clean, transparent, and efficient government through comprehensive supervision.
- - Xiong'an has launched and implemented 9 blockchain applications around the government field.
- - The State Information Center, Union Pay, China Mobile, and three other organizations launched the Blockchain Services Network (BSN), a nationwide blockchain infrastructure project envisioned to be the “Android or Apple’s IOS system” for the blockchain.
- - legalXchain registered three blockchain services that are based on legalXchain, LegalFabric, and the Hyperledger.
- Blockchain technology appeared in China’s 13th Five-Year Plan for the development of information technology.

The Guiyang Municipal People’s Government Press Office published a white paper entitled “Development and Application of Guiyang Blockchain.” The white paper has been referred to by industry practitioners as the country’s “first blueprint” for blockchain technology.

#### Hong Kong SAR

- Hong Kong’s financial published new rules for cryptocurrency exchanges to get licenses. One rule stipulates that crypto exchanges do not need a Securities and Futures Commission (SFC) license to operate if they do not trade any products defined as a security.

#### India

- The Democratic Party of India utilizes a blockchain-based voting platform to consult Indian citizens to determine future policy positions.
- The Minister of State for Electronics and Information Technology has identified blockchain technology as an essential research area in domains such as governance, banking and finance, and cybersecurity in a draft approach paper. The paper also introduces a National Level Blockchain Framework, which discusses the potential for distributed ledger technology and the need for a shared infrastructure for different use cases.
- The Maharashtra Government and the Dept. of Revenue partnered with an open-source hybrid blockchain platform to complete a proof of concept for land records on the blockchain. Maharashtra is the third largest state of India.

#### Malaysia

- The Malaysia Digital Economy Corporation (MDEC) announced that it is piloting a work visa program for tech freelancers to work in Malaysia short term, to fulfill a demand for AI, blockchain, and cybersecurity capable talents.

#### Singapore

- The Central Bank Monetary Authority of Singapore teamed up with ConsenSys to explore the potential of distributed ledger technology in central banking. Project Ubin implemented real-time gross settlement systems with full transaction privacy, settlement finality, and no single point of failure.

#### South Korea

- South Korea's Customs service launched a blockchain-based clearing system for import and export shipping management.
- The South Korean government is investing in six separate blockchain pilots with a \$9 million fund.

#### Thailand

- The State Railway of Thailand and Thailand Post will reportedly develop and apply Internet of Things (IoT) technology to track train arrivals and departures and blockchain technology to track high-value parcels.

#### United Arab Emirates (UAE)

- The Smart Dubai project leverages blockchain, A.I., and IoT technology in attempts to make Dubai the happiest city on earth.

#### Australia

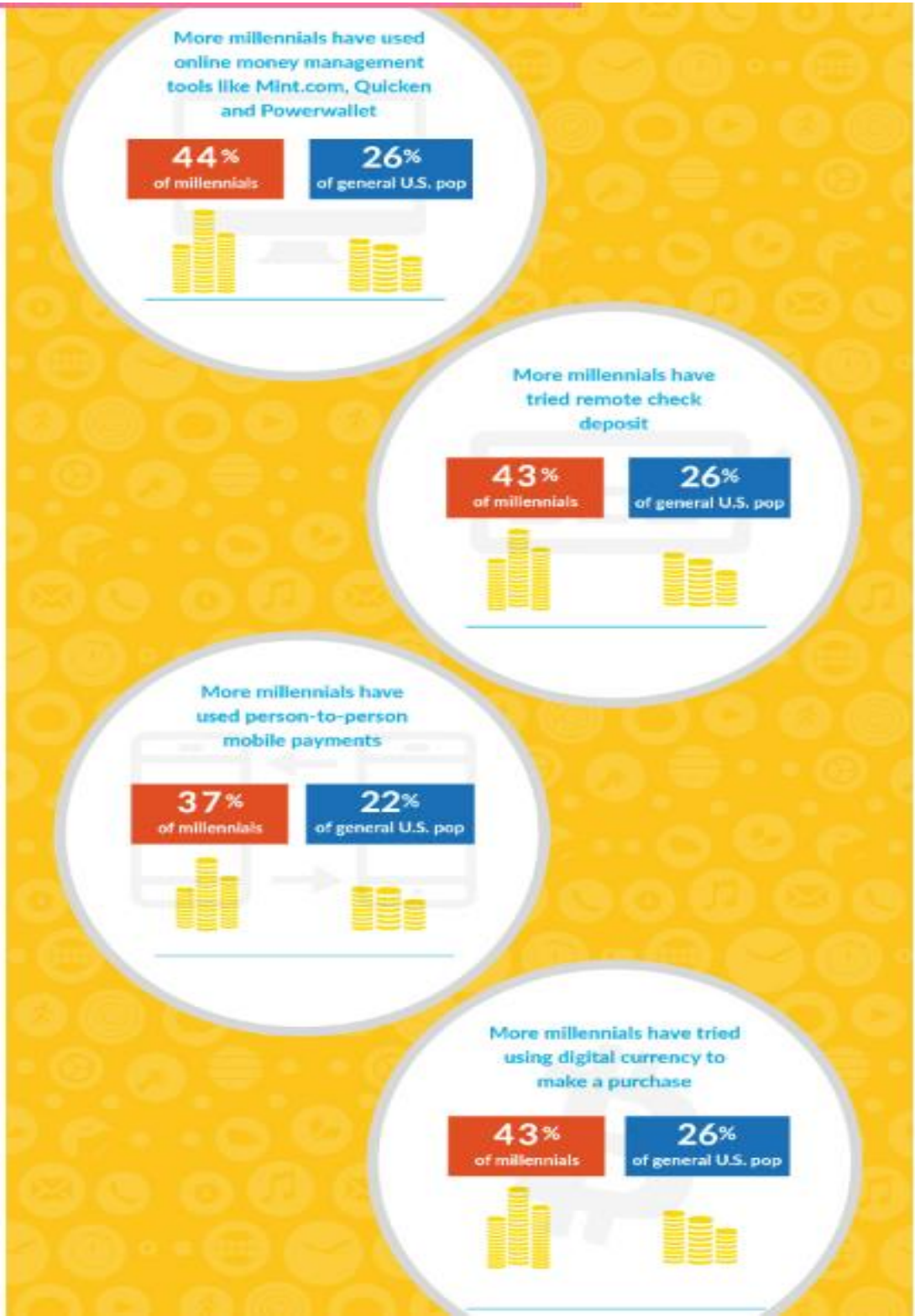
- Australia's Commonwealth Bank issued a crypto bond for Queensland Treasury Corporation.
- The Morrison government-backed Australia's national blockchain strategy and roadmap, with a boost of AU\$100,000 in funding.
- The Parliament of Australia formed a bi-partisan parliamentary group to raise awareness of blockchain as well as give the industry a chance to showcase its users.
- The Australian government's Digital Transformation Agency has entered the blockchain discovery stage. The DTA released a blockchain overview for Australian government employees.
- Queensland government awarded \$100,000 in funding to install a cryptocurrency point-of-sale system in dozens of local companies in the City of Bundaberg.
- Australian government cloud infrastructure provider AUCloud integrated a blockchain-based O.S. into their SaaS. The AUCloud platform is currently used by major Australian government departments, including the Defense Department.
- The South Australian government conducted an official election using a blockchain-based voting system.
- Australia's Perth Mint launched a gold-backed Ethereum token guaranteed by the government of Western Australia.
- The Australian Securities & Investments Commission (ASIC) published a regulatory information sheet INFO 219 for businesses considering operating market



infrastructure, or providing financial or consumer credit services, using distributed ledger technology.

- Australia's Liberal-National government invested USD 500,000 to the country's Digital Transformation Agency to explore the benefits of using blockchain for government payments
- Standards Australia received a U.S. \$250,000 boost from Australia's Liberal-National government to promote the development of standardized international blockchain standards.
- The Australian government signed a five-year deal to accelerate the uptake of blockchain, artificial intelligence (A.I.), and quantum computing in the public sector.

Appendix 2: Review of demographic force (Vision Critical,2012)



## THEY PREFER ALTERNATIVE FINANCIAL PRODUCTS



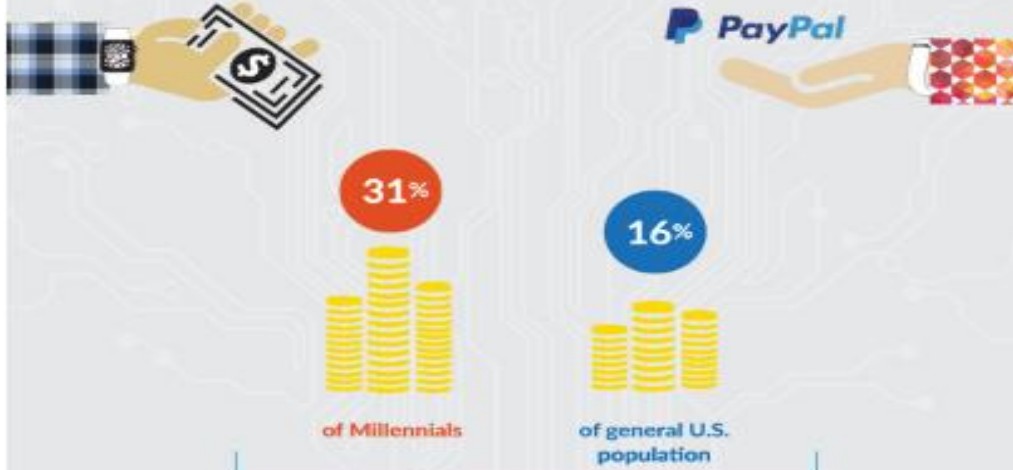
of Millennials



of general U.S.  
population

More millennials use alternative products like prepaid cards, check cashing services, payday advance loans, money transfer agents (e.g., Western Union), pawn brokers and installments lenders.

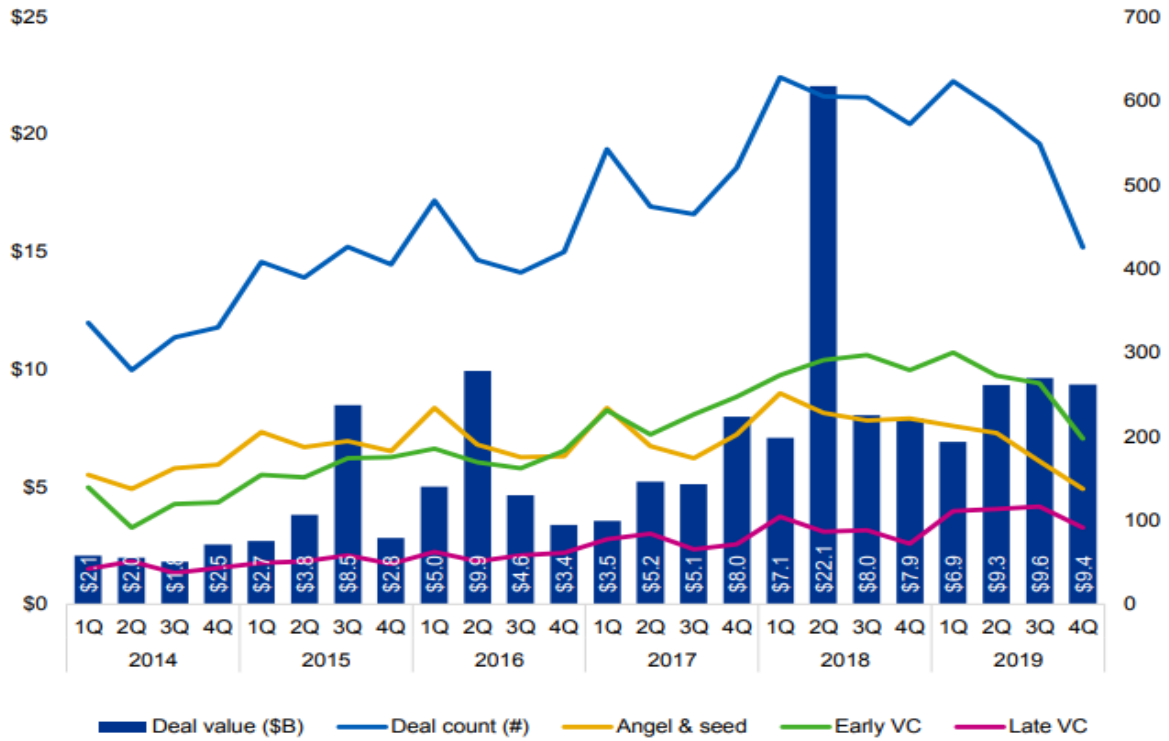
## THEY TRUST TECH COMPANIES TO HANDLE THEIR MONEY



More millennials would switch their checking account from their bank to a company like Google or PayPal if these companies decided to offer checking accounts in the future

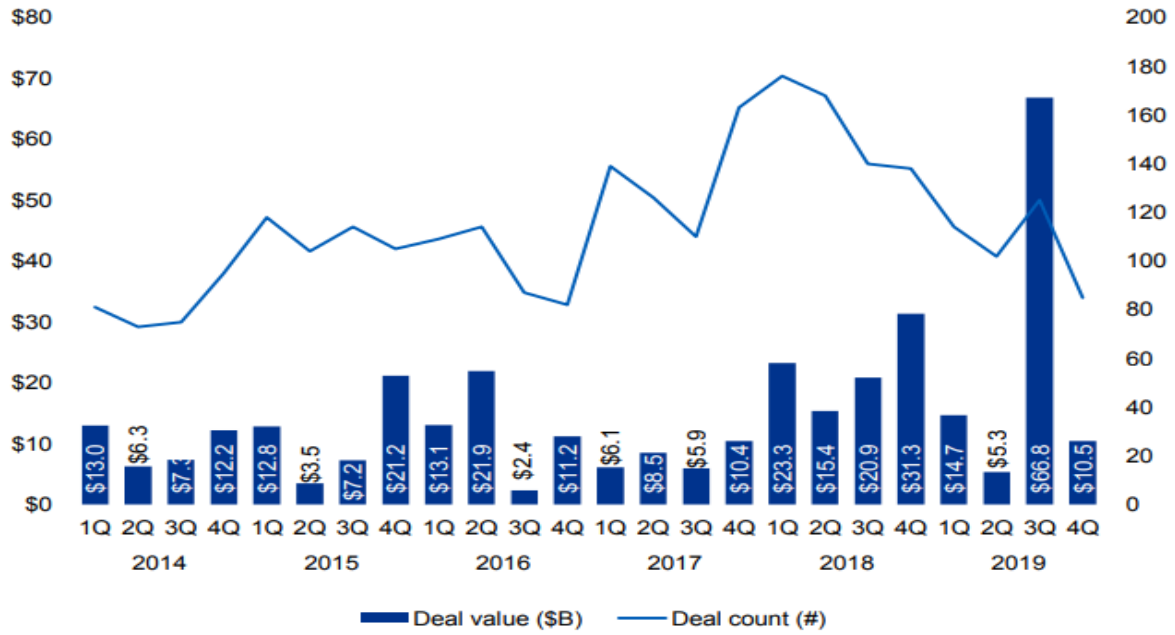
### Appendix 3: Global FinTech Investments

#### Global venture activity in fintech 2014–Q4 2019



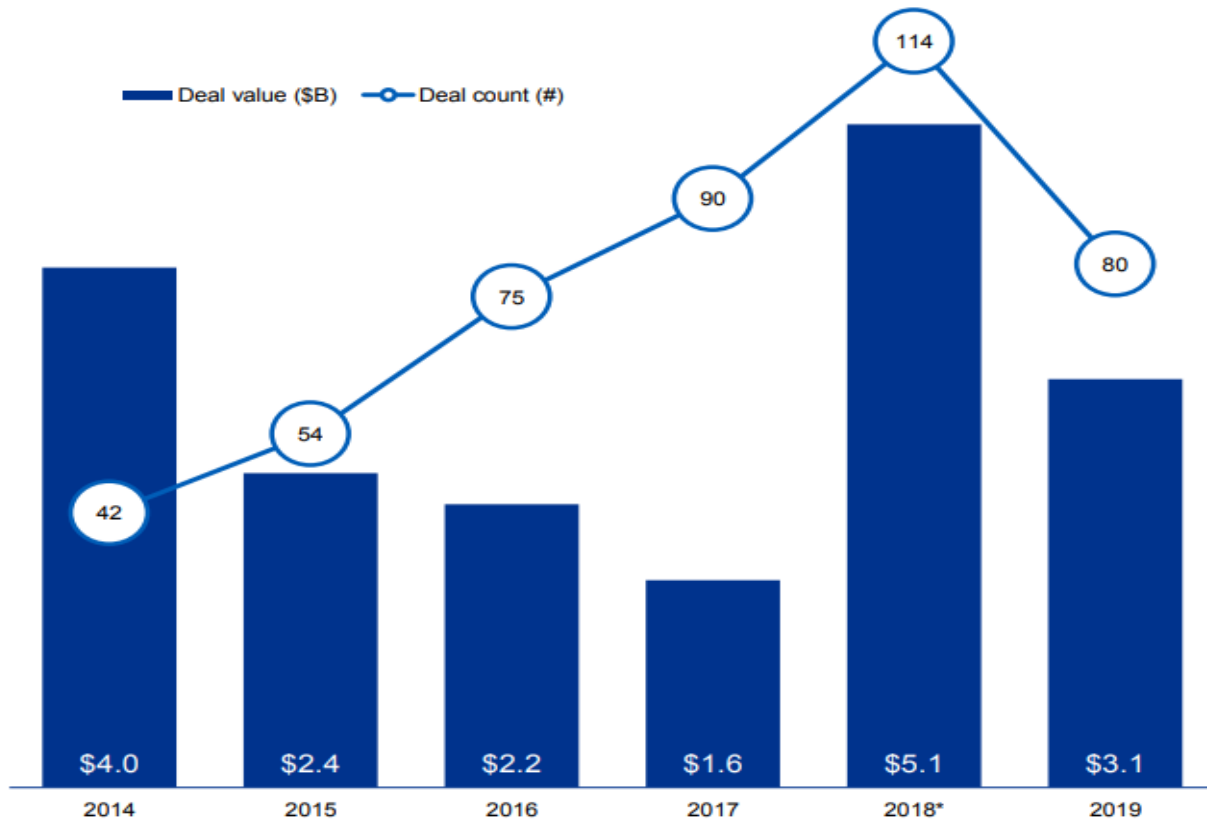
Source: Pulse of Fintech 2019, Global Analysis of Investment in Fintech, KPMG International (data provided by PitchBook), as of 31 December, 2019.  
 Note: Refer to the Methodology section at the end of the document to understand any possible data discrepancies between this edition and previous editions of The Pulse of Fintech.

**Global M&A activity in fintech  
2014–Q4 2019**



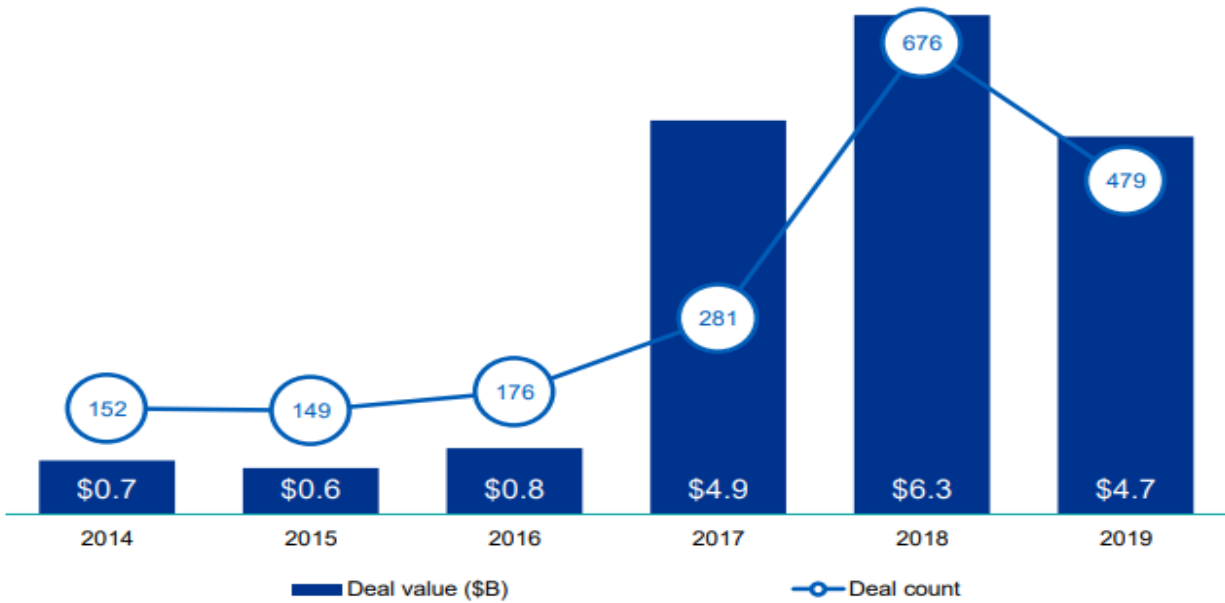
Source: Pulse of Fintech 2019, Global Analysis of Investment in Fintech, KPMG International (data provided by PitchBook), as of 31 December, 2019.

**Global PE growth investment activity in fintech  
2014–2019**



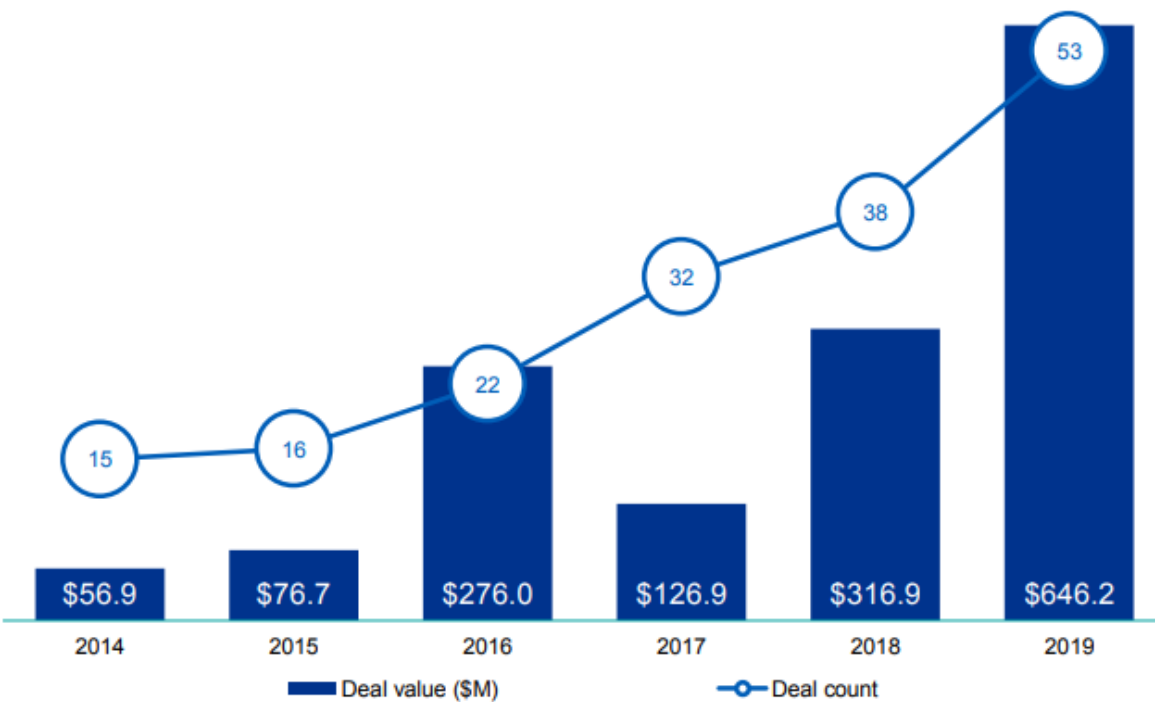
Source: Pulse of Fintech 2019, Global Analysis of Investment in Fintech, KPMG International (data provided by PitchBook), as of 31 December, 2019.

**Global private investment (VC, PE and M&A) in blockchain & cryptocurrency  
2014–2019**



Source: Pulse of Fintech 2019, Global Analysis of Investment in Fintech, KPMG International (data provided by PitchBook), as of 31 December, 2019.

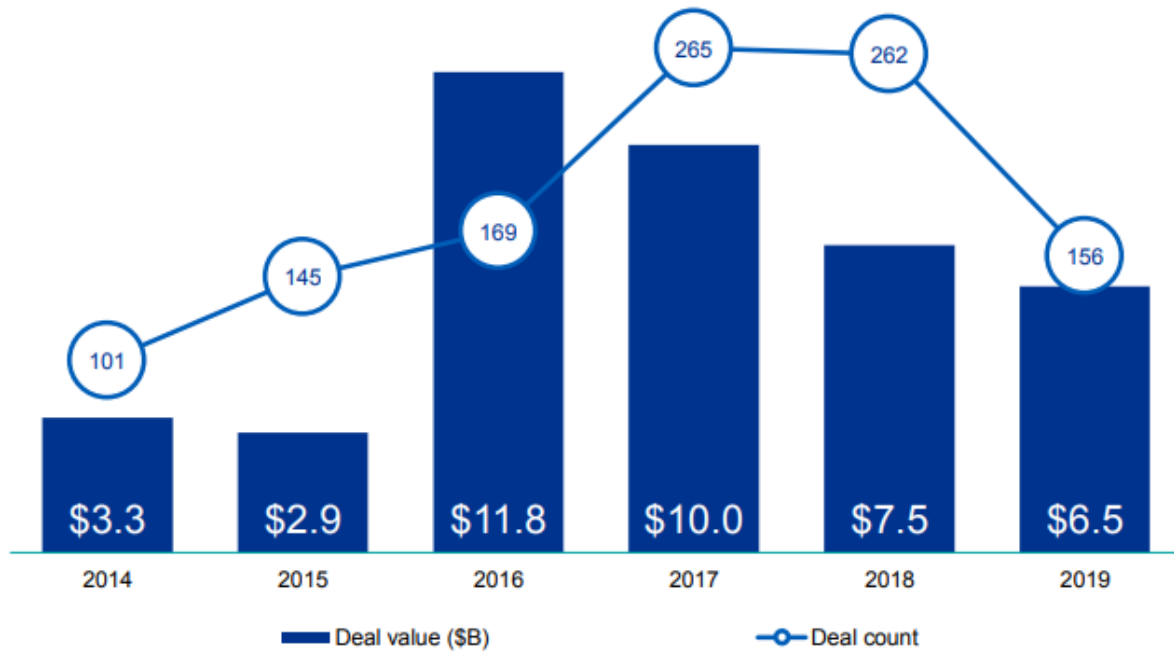
**Global private investment (VC, PE and M&A) in fintech: cybersecurity  
2014–2019**



Source: Pulse of Fintech 2019, Global Analysis of Investment in Fintech, KPMG International (data provided by PitchBook), as of 31 December, 2019.

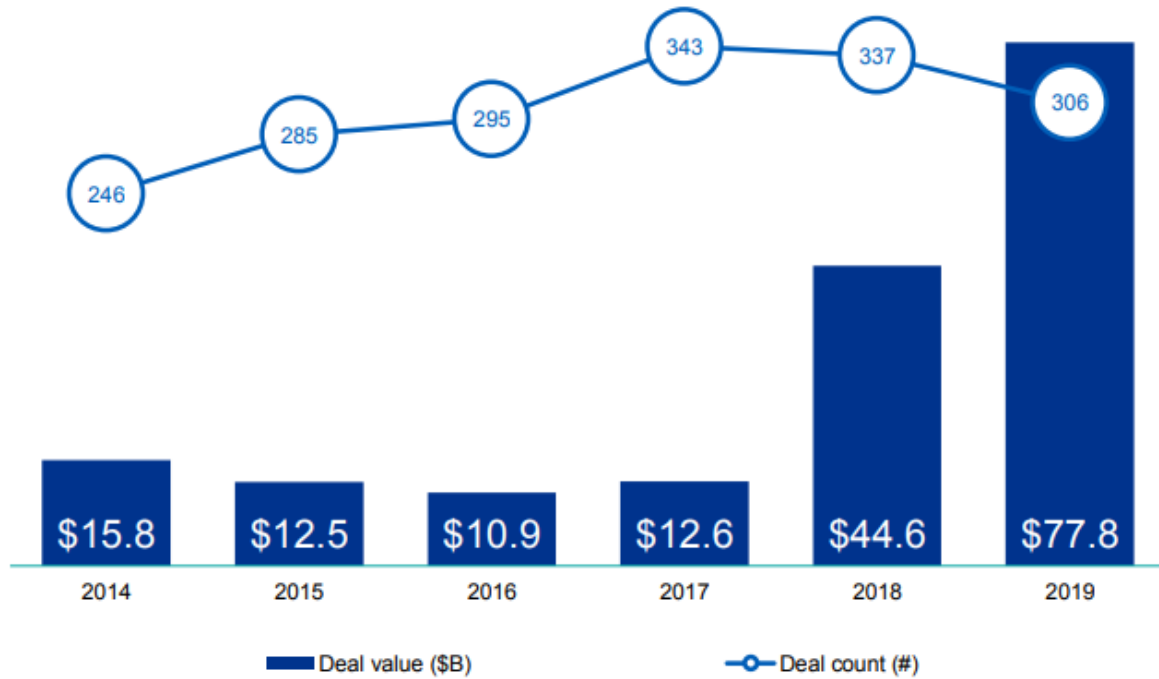


### Global private investment (VC, PE and M&A) in insurtech 2014–2019



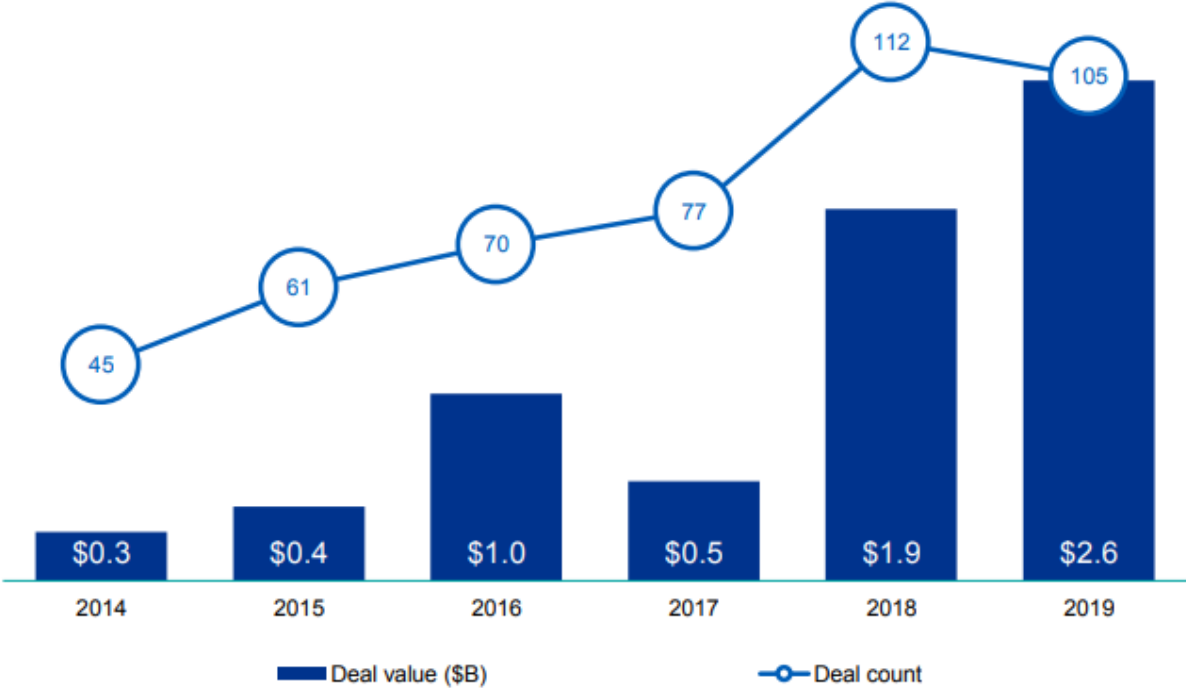
Source: Pulse of Fintech 2019, Global Analysis of Investment in Fintech, KPMG International (data provided by PitchBook), as of 31 December, 2019.

### Global private investment (VC, PE and M&A) in payments 2014–2019



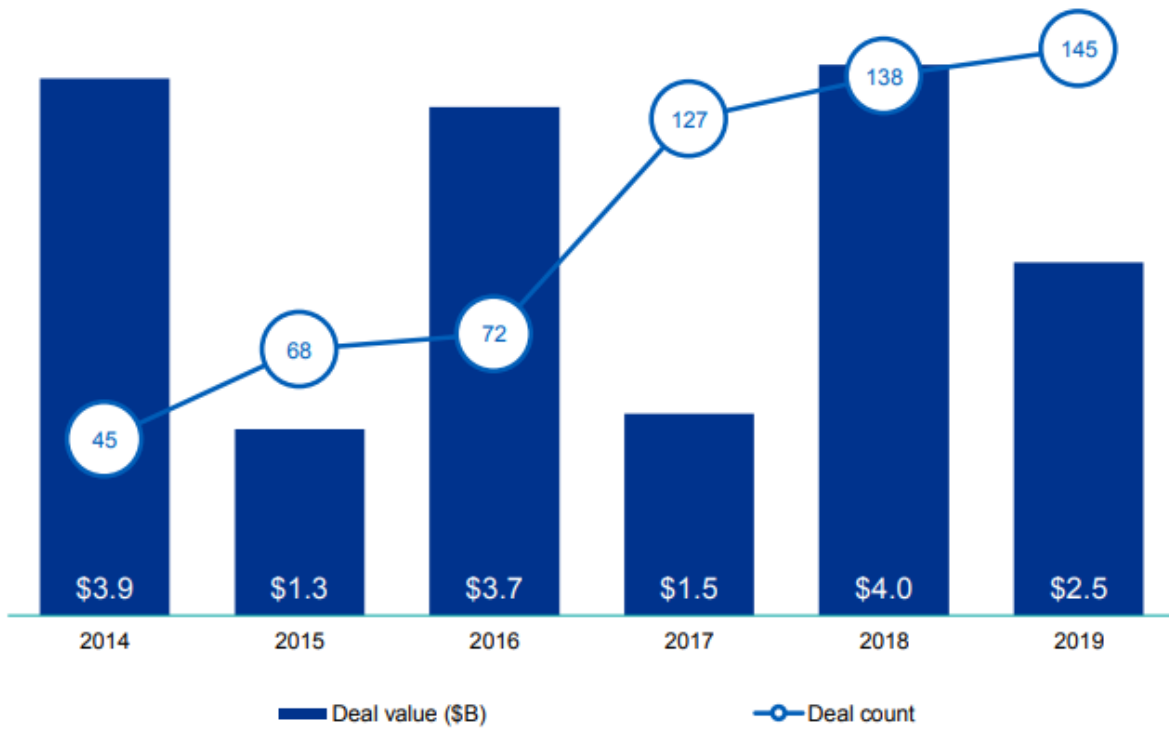
Source: Pulse of Fintech 2019, Global Analysis of Investment in Fintech, KPMG International (data provided by PitchBook), as of 31 December, 2019.

**Global private investment (VC, PE and M&A) in proptech  
2014–2019**



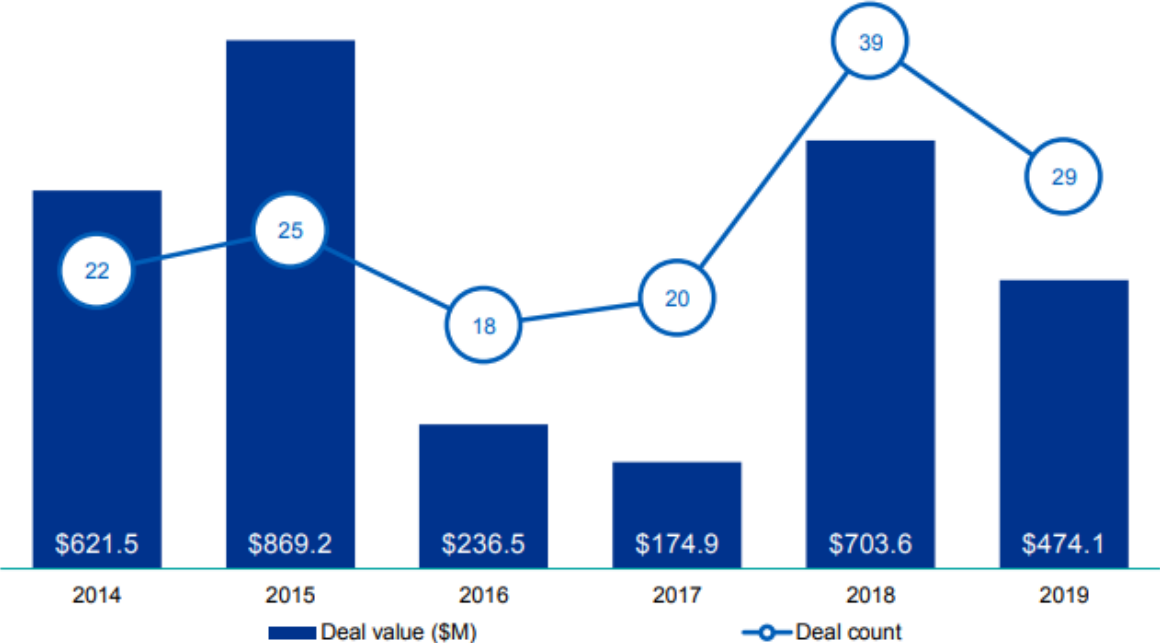
Source: Pulse of Fintech 2019, Global Analysis of Investment in Fintech, KPMG International (data provided by PitchBook), as of 31 December, 2019.

**Global private investment (VC, PE and M&A) in regtech  
2014–2019**



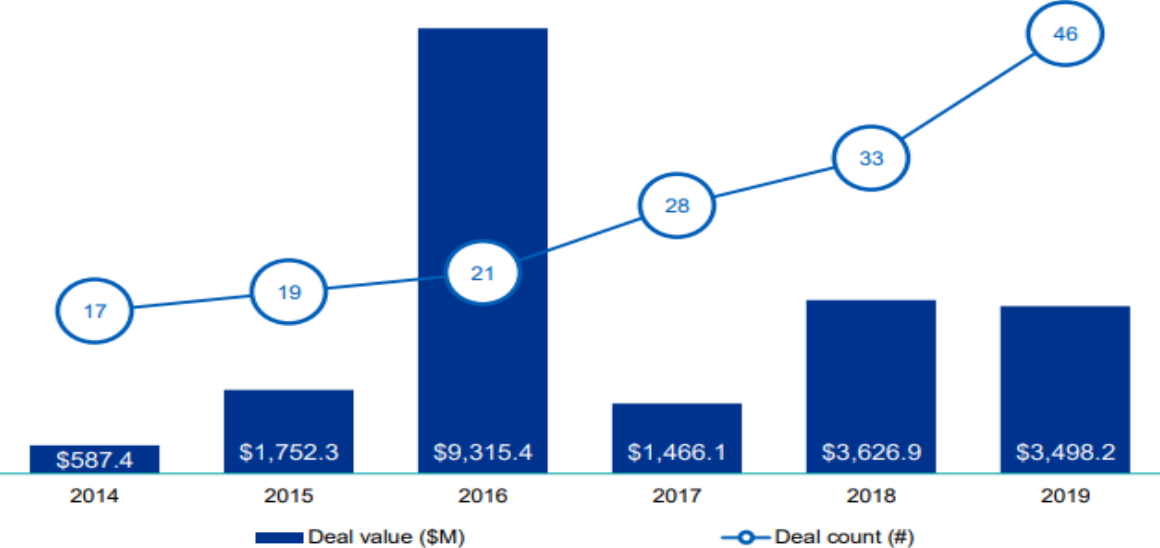
Source: Pulse of Fintech 2019, Global Analysis of Investment in Fintech, KPMG International (data provided by PitchBook), as of 31 December, 2019.

**Global private investment (VC, PE and M&A) in wealthtech  
2014–2019**



Source: Pulse of Fintech 2019, Global Analysis of Investment in Fintech, KPMG International (data provided by PitchBook), as of 31 December, 2019.

**Global private investment (VC and M&A) in fintech by tech giants\*  
2014–2019**



Source: Pulse of Fintech 2019, Global Analysis of Investment in Fintech, KPMG International (data provided by PitchBook), as of 31 December, 2019.  
\*Note: This ranking includes affiliates of said tech companies.

## Top 10 global fintech VC, PE and M&A deals in 2019



- |   |   |
|---|---|
| <p><b>1</b> <b>Worldpay</b> — \$42.5B, London, UK<br/>Payments/transactions<br/><i>M&amp;A</i></p>                  | <p><b>6</b> <b>Paytm</b> — \$1.7B, Noida, India<br/>Payments/transactions<br/><i>Series G</i></p>                 |
| <p><b>2</b> <b>First Data</b> — \$22B, Atlanta, US<br/>Institutional/B2B<br/><i>M&amp;A</i></p>                     | <p><b>7</b> <b>eFront (France)</b> — \$1.3B, Paris, France<br/>Institutional/B2B<br/><i>Buyout</i></p>            |
| <p><b>3</b> <b>Dun &amp; Bradstreet</b> — \$6.9B, Short Hills, US<br/>Institutional/B2B<br/><i>Buyout</i></p>       | <p><b>8</b> <b>Property Exchange Australia</b> — \$1.2B, Melbourne, Australia<br/>Proptech<br/><i>M&amp;A</i></p> |
| <p><b>4</b> <b>Assurance IQ</b> — \$3.5B, Bellevue, US<br/>Insurtech<br/><i>M&amp;A</i></p>                         | <p><b>9</b> <b>Investment Technology Group</b> — \$1B, New York, US<br/>Capital markets<br/><i>M&amp;A</i></p>    |
| <p><b>5</b> <b>AllExchange</b> — \$2.1B, Tallinn, Estonia<br/>Capital markets/cryptocurrency<br/><i>M&amp;A</i></p> | <p><b>10</b> <b>SIA (Milan)</b> — \$894.8M, Milan, Italy<br/>Institutional/B2B<br/><i>Buyout</i></p>              |

Source: Pulse of Fintech 2019, Global Analysis of Investment in Fintech, KPMG International (data provided by PitchBook), as of 31 December, 2019.











































All currency amounts are in US\$ unless otherwise specified. Data provided by PitchBook unless otherwise specified.

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#fintechpulse 25












































































## Appendix 4: Bitcoin legality (Coin Dance, 2020)


Country Search		List All	
Name	Bitcoin Legality	Classification	
Abkhazia 	Legal	No Information	 +21
Afghanistan 	Illegal	Currency	 +21
Aland Islands 	Legal	Currency	 +21
Albania 	Neutral / Alegal	Commodity	 +21
Algeria 	Illegal	Currency	 +21
American Samoa 	Restricted	Commodity	 +21
Andorra 	Neutral / Alegal	No Information	 +21
Angola 	No Information	No Information	 +21
Anguilla 	Legal	No Information	 +21
Antarctica 	No Information	No Information	 +21
Antigua and Barbuda 	Legal	No Classification	 +21
Argentina 	Neutral / Alegal	Property	 +21
Armenia 	No Information	No Information	 +21
Aruba 	Legal	No Information	 +21
Australia 	Legal	Property	 +21
Austria 	Legal	Barter Good	 +21
Azerbaijan 	Legal	Currency	 +21
Bahamas 	Legal	Currency	 +21
Bahrain 	Neutral / Alegal	No Information	 +21
Bangladesh 	Illegal	No Information	 +21
Barbados 	Neutral / Alegal	No Information	 +21

Belarus 	Legal	Commodity	 
Belgium 	Legal	Currency	 
Belize 	Legal	No Information	 
Benin 	No Information	No Information	 
Bermuda 	No Information	No Information	 
BES Islands 	Legal	No Information	 
Bhutan 	No Information	No Information	 
Bolivia 	Illegal	No Information	 
Bosnia and Herzegovina 	Legal	Commodity	 
Botswana 	No Information	No Information	 
Bouvet Island 	No Information	No Information	 
Brazil 	Legal	Commodity	 
British Indian Ocean Territory 	No Information	No Information	 
British Virgin Islands 	Legal	Money	 































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Bulgaria 	Legal	Currency	 
Burkina Faso 	No Information	No Information	 
Burundi 	No Information	No Information	 
Cambodia 	No Information	No Information	 
Cameroon 	No Information	No Information	 
Canada 	Legal	Barter Good	 
Cape Verde 	No Information	No Information	 
Capetown 	Legal	No Information	 
Cayman Islands 	No Information	No Information	 
Central African Republic 	No Information	No Information	 

































































Chad 	No Information	No Information	 
Chile 	Neutral / Alegal	No Information	 
China 	Restricted	Commodity	 
Christmas Island 	No Information	No Information	 
Cocos (Keeling) Islands 	No Information	No Information	 
Colombia 	Neutral / Alegal	No Classification	 
Comoros 	No Information	No Information	 
Congo 	Legal	No Information	 
Cook Islands 	No Information	No Information	 
Costa Rica 	Legal	Currency	 
Cote D'Ivoire 	No Information	No Information	 
Croatia 	Legal	Currency	 
Cuba 	Legal	Currency	 
Curacao 	No Information	No Information	 
Cyprus 	Legal	Currency	 
Czech Republic 	Legal	Currency	 
Democratic Republic of the Congo 	No Information	No Information	 
Denmark 	Legal	Currency	 
Djibouti 	No Information	No Information	 
Dominica 	No Information	No Information	 
Dominican Republic 	Legal	No Classification	 
Ecuador 	Neutral / Alegal	No Classification	 
Egypt 	Restricted	Commodity	 
El Salvador 	No Information	No Information	 
Equatorial Guinea 	No Information	No Information	 



















































Eritrea 	No Information	No Information	 
Estonia 	Legal	Currency	 
Ethiopia 	Legal	Currency	 
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Faroe Islands 	No Information	No Information	 
Federated States of Micronesia 	No Information	No Information	 
Fiji 	No Information	No Information	 
Finland 	Legal	Currency	 
France 	Legal	Commodity	 
French Guiana 	Neutral / Alegal	Money	 
French Polynesia 	No Information	No Information	 
French Southern Territories 	No Information	Property	 
Gabon 	Neutral / Alegal	No Information	 
Gambia 	No Information	No Information	 
Georgia 	Legal	No Classification	 
Germany 	Legal	Barter Good	 
Ghana 	Legal	No Information	 
Gibraltar 	Legal	No Information	 
Greece 	Legal	Currency	 
Greenland 	Legal	Commodity	 
Grenada 	No Information	No Information	 
Guadeloupe 	No Information	No Information	 
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Guatemala 	No Information	No Information	 
Guernsey 	No Information	No Information	 



















































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Guinea-Bissau 	No Information	No Information	 
Guyana 	No Information	No Information	 
Haiti 	No Information	No Information	 
Heard Island and Mcdonald Islands 	No Information	No Information	 
Holy See 	No Information	No Information	 
Honduras 	No Information	No Information	 
Hong Kong 	Legal	Commodity	 
Hungary 	Legal	Currency	 
Iceland 	Legal	Currency	 
India 	Legal	Property	 
Indonesia 	Legal	Commodity	 
Iran 	Legal	Currency	 
Iraq 	Legal	No Information	 
Ireland 	Legal	Currency	 




Isle of Man 	Legal	No Information	 
Israel 	Legal	Commodity	 
Italy 	Legal	Currency	 
Jamaica 	Neutral / Alegal	No Classification	 
Japan 	Legal	Currency	 
Jersey 	Legal	Currency	 
Jordan 	Neutral / Alegal	Currency	 
Kazakhstan 	Neutral / Alegal	Currency	 
Kenya 	Neutral / Alegal	No Classification	 
Kingman Reef 	Legal	No Information	 

Kiribati 	No Information	No Information	 +2
Kosovo 	Neutral / Alegal	No Information	 +2
Kuwait 	Legal	No Information	 +2
Kyrgyzstan 	Neutral / Alegal	Currency	 +2
La Paz 	Legal	No Information	 +2
Lao People's Democratic Republic 	No Information	No Information	 +2
Latvia 	Legal	Currency	 +2
Lebanon 	Legal	No Information	 +2
Lesotho 	No Information	No Information	 +2
Liberia 	No Information	No Information	 +2
Liberland 	Legal	Currency	 +2
Libyan Arab Jamahiriya 	Legal	Money	 +2
Liechtenstein 	Legal	Currency	 +2
Lithuania 	Legal	Currency	 +2
Luxembourg 	Legal	Currency	 +2
Macao 	No Information	No Information	 +2
Madagascar 	No Information	No Information	 +2
Malawi 	No Information	No Information	 +2
Malaysia 	Neutral / Alegal	No Classification	 +2
Maldives 	Neutral / Alegal	No Information	 +2
Mali 	No Information	No Information	 +2
Malta 	Legal	Currency	 +2
Marshall Islands 	No Information	No Information	 +2
Martinique 	No Information	No Information	 +2
Mauritania 	No Information	No Information	 +2























Mauritius 	Neutral / Alegal	No Classification	 +2,
Mayotte 	No Information	No Information	 +2,
Mexico 	Legal	Currency	 +2,
Monaco 	Legal	Currency	 +2,
Mongolia 	Legal	No Information	 +2,
Montenegro 	No Information	No Information	 +2,
Montserrat 	No Information	No Information	 +2,
Morocco 	Restricted	No Classification	 +2,
Mozambique 	No Information	No Information	 +2,
Myanmar 	No Information	No Information	 +2,
Namibia 	No Information	No Information	 +2,
Nauru 	No Information	No Information	 +2,
Nepal 	Restricted	No Classification	 +2,
Netherlands 	Legal	Commodity	 +2,
Netherlands Antilles 	No Information	No Information	 +2,
New Caledonia 	No Information	No Information	 +2,
New Zealand 	Legal	Property	 +2,
Nicaragua 	Legal	No Information	 +2,
Niger 	No Information	No Information	 +2,
Nigeria 	Neutral / Alegal	Currency	 +2,
Niue 	Legal	No Information	 +2,
Norfolk Island 	No Information	No Information	 +2,
North Korea 	No Information	No Information	 +2,
Northern Cyprus 	Legal	No Information	 +2,
Northern Mariana Islands 	Legal	Commodity	 +2,

Norway 	Legal	Commodity	 +22
Oman 	No Information	No Information	 +22
Pakistan 	Illegal	Currency	 +22
Palau 	No Information	No Information	 +22
Palestinian Territories 	No Information	No Information	 +22
Panama 	Neutral / Alegal	No Classification	 +22
Papua New Guinea 	No Information	No Information	 +22
Paraguay 	Neutral / Alegal	No Classification	 +22
Peru 	Neutral / Alegal	No Classification	 +22
Philippines 	Legal	Barter Good	 +22
Pitcairn 	No Information	No Information	 +22
Poland 	Legal	Property	 +22
Portugal 	Legal	No Classification	 +22
Puerto Rico 	Legal	Property	 +22
Qatar 	Restricted	No Information	 +22
Republic of Macedonia 	Illegal	No Information	 +22
Republic of Moldova 	No Information	No Information	 +22
Reunion 	Legal	Commodity	 +22
Romania 	Legal	Currency	 +22
Russian Federation 	Legal	Currency	 +22
Rwanda 	No Information	No Information	 +22
Saint Helena 	No Information	No Information	 +22
Saint Kitts and Nevis 	Legal	Currency	 +22
Saint Lucia 	No Information	No Information	 +22
Saint Pierre and Miquelon 	No Information	No Information	 +22

Saint Vincent and the Grenadines 	No Information	No Information	 +2
Samoa 	No Information	No Information	 +2
San Marino 	Legal	Currency	 +2
Sao Tome and Principe 	No Information	No Information	 +2
Saudi Arabia 	Illegal	No Information	 +2
Senegal 	No Information	No Information	 +2
Senegal 	No Information	No Information	 +2
Serbia 	Legal	Commodity	 +2
Seychelles 	No Information	No Information	 +2
Sierra Leone 	No Information	No Information	 +2
Singapore 	Legal	Currency	 +2
Sint Maarten 	No Information	No Information	 +2
Slovakia 	Legal	Currency	 +2
Slovenia 	Legal	Currency	 +2
Solomon Islands 	No Information	No Information	 +2
Somalia 	No Information	No Information	 +2
South Africa 	Legal	Currency	 +2
South Georgia and the South Sandwich Islands 	No Information	No Information	 +2
South Korea 	Legal	No Classification	 +2
South Sudan 	No Information	No Information	 +2
Spain 	Legal	Currency	 +2
Sri Lanka 	No Information	No Information	 +2
Sudan 	No Information	No Information	 +2
Suriname 	No Information	No Information	 +2
Svalbard and Jan Mayen 	Legal	Commodity	 +2

Swaziland 	No Information	No Information	 +2
Sweden 	Legal	Commodity	 +2
Switzerland 	Legal	Currency	 +2
Syrian Arab Republic 	No Information	No Information	 +2
Taiwan 	Legal	Commodity	 +2
Tajikistan 	No Information	No Information	 +2
Thailand 	Legal	Commodity	 +2
Timor-Leste 	No Information	No Information	 +2
Togo 	No Information	No Information	 +2
Tokelau 	No Information	No Information	 +2
Tonga 	No Information	Currency	 +2
Trinidad and Tobago 	No Information	No Information	 +2
Tunisia 	Neutral / Alegal	No Classification	 +2
Turkey 	Legal	Commodity	 +2
Turkmenistan 	No Information	No Information	 +2
Turks and Caicos Islands 	No Information	No Information	 +2
Tuvalu 	No Information	No Information	 +2
U.S. Virgin Islands 	No Information	No Information	 +2
Uganda 	No Information	No Information	 +2
Ukraine 	Legal	Currency	 +2
United Arab Emirates 	Neutral / Alegal	No Classification	 +2
United Kingdom 	Legal	Currency	 +2
United Republic of Tanzania 	Neutral / Alegal	No Information	 +2
United States Minor Outlying Islands 	No Information	No Information	 +2
United States of America 	Legal	Property	 +2



Uruguay 	Neutral / Alegal	Property	 +2
Uzbekistan 	Legal	Currency	 +2
Vanuatu 	Neutral / Alegal	Currency	 +2
Venezuela 	Legal	Currency	 +2
Viet Nam 	Illegal	Property	 +2
Wallis and Futuna 	No Information	No Information	 +2
West Bank 	No Information	No Information	 +2
Western Sahara 	Legal	No Information	 +2
Yemen 	No Information	Currency	 +2
Zambia 	Restricted	No Information	 +2
Zimbabwe 	Legal	Commodity	 +2

## Appendix 5: Top global FinTech hubs

### 1. **Beijing: Global Fintech Industry Leader, Supported by Technical Innovation and Economy**

#### ■ No.1 in Global Fintech Industry

- Rank 1<sup>st</sup> with 58 leading Fintech companies, including JD Finance, Du Xiaoman Financial and Qudian. These 58 companies received combined funds of \$21.2B

#### ■ Innovation Hub in China

- Market value of TOP200 global tech companies ranks 2<sup>nd</sup> in the world
- 186,000 patent applications in 2017
- Cluster of startup incubators and innovation labs

#### ■ Best Fintech Ecosystem in China

- Second largest GDP in China and one of the world's most populous cities
  - Top universities rank 1<sup>st</sup> in China, and it has 10 global TOP500 universities
  - Market value of TOP200 global financial institutions ranks No.2
- 

### 2. **San Francisco: Silicon Valley Advantage**

#### ■ No.2 in Global Fintech Industry

- Rank 2<sup>nd</sup> in the number of leading Fintech companies that has raised accumulated funds of more than \$13.1B, and Rank 3<sup>rd</sup> in total funds raised

- Many Fintech unicorns came from San Francisco

#### ■ Advanced Information Technology Innovation Industry

- Located close to the top high-tech innovation centre – the Silicon Valley
- Market value of TOP200 global tech companies ranks No.7 in the globe

#### ■ Large Talent Pool and Ample VC Investments

- Rank 3<sup>rd</sup> in comprehensive strength of top universities
  - Close collaboration between industry and academic research
  - Location of the headquarters of internationally famous investment institutions such as Walden International and WI Harper Group
-

### **3. New York: The Best Ecosystem Driven by Traditional Finance**

- **No.1 in Global Fintech Ecosystem**
  - The largest city in the USA
  - Second largest GDP in the world
- **Highest Digitalization Level of the Financial Sector in the World**
  - Global financial centre with Wall Street
  - Market value of TOP200 global financial institutions ranks No.1
- **Global Leader in Technology Talent**
  - Cluster of top universities and form the largest concentration of higher education institutes in the world
  - Market value of TOP200 global tech companies ranks No.3 in the globe

### **4. London: Pioneer in Regulation, Global TOP3 in Ecosystem**

- **Global Financial Centre**
  - Undoubtedly a global financial centre
  - Cluster of world-leading financial institutions, including HSBC, Barclays and Standard Chartered Bank, etc.
  - Market value of TOP200 global financial institutions ranks No.3 globally
- **Cluster of Top Research Universities**
  - Rank 2<sup>nd</sup> in comprehensive strength of top universities in the world, including University College London, and Imperial College London
- **Global Pioneer in Fintech Regulation**
  - Best Fintech regulation in the world
  - Pioneering regulatory innovation, the first regulatory sandbox

## **5. Shanghai: Balanced Industry, China's International Financial Centre**

- **Fintech Industry Ranks No.2 in China**
  - Rank 5<sup>th</sup> in the number of leading Fintech companies that have raised accumulated funds of about \$9.2B
  - World-leading Fintech companies include PPDai, Lufax, ZhongAn, etc.
- **Aiming to be an International Finance Centre**
  - The value add of the finance industry accounts for 17% of GDP, tops in China
  - Cluster of many national financial exchanges, such as the Shanghai Stock Exchange, and the Shanghai Futures Exchange
- **Asian Economic Centre**
  - Largest GDP in China and the second largest in Asia, comes in close behind Tokyo
- **Leads in Internationalization in China**
  - Important international gateway in the Asia Pacific

## **6. Hangzhou: Significant First Mover Advantages, Best Consumer Experience**

- Significant Fintech First Mover Advantages
  - The source of Internet finance in China, and the global Fintech giant Ant Financial is headquartered here
  - Rank 7<sup>th</sup> in the number of leading Fintech companies but rank 1<sup>st</sup> in the total funds raised
- Best Fintech Consumer Experience Globally
  - The city of mobile payment, it tops the percentage of Fintech users globally at 91.5%
- Well-developed Digital Economy
  - Market value of TOP200 global tech companies ranks No.6 in the globe
  - With world-leading digital economy companies such as Alibaba, Hikvision, Dahua Technology etc.
- Excellent Innovation and Startup Environment
  - Growth rate of innovative projects consecutively ranked No.1 for 4 years in China

## **7. Shenzhen: Great Geographical Advantages, and Strong Corporate Headquarters**

- Significant Geographical Advantages
  - It is the bridge between Hong Kong and the Chinese mainland
  - Regional financial centre: it is where the Shenzhen Stock Exchange is located, market value of TOP200 global financial institutions ranks No.5 globally
- Technology Innovation Centre in China
  - Market value of TOP200 global tech companies ranks No.5 in the globe
  - World-leading technology companies represented by Huawei and Tencent headquarter in Shenzhen
- Outstanding Fintech Consumer Experience and Digitization of Financial Sector
  - Rank No.2 globally in percentage of Fintech users at 86.0%
  - Rank No.2 in digitization of the traditional financial sector in the world

## **8. Chicago Relying on Its Financial Sector Advantages to Develop Fintech**

1. The centre for financial derivatives, insurance and risk management; The Chicago Mercantile Exchange facilitates approximately 20% of the world's futures, options and derivatives trade
2. Leading Fintech companies develop quickly: Avant and TransUnion each received over \$1B funding; Number of Fintech companies with total VC investment exceeding \$50M ranks 10<sup>th</sup> globally

## **9. Singapore Global Leader in Fintech Policy Support and Regulation**

1. Great tech basis: recognized as the most "technology-ready" nation; "National Innovation System" supports frontier technology; high smartphone permeation (85%)
2. No.1 in Fintech regulation: established the *Fintech & Innovation Group and Fintech Office* in 2015, and implemented *Financial Sector Technology & Innovation Scheme*
3. No.8 in the number of Fintech companies with total VC investment exceeding \$50M; 4 out of the top 5 are in cryptocurrency area

## **10. Hong Kong Financial Institutions Accelerate Transformation, Taking Leadership in Regional Collaboration**

1. Global finance centre with ample capital
2. 6 leading Fintech companies with total VC investment exceeding \$50M
3. Rank No.5 in digitalization of the traditional financial sector
4. The Faster Payment System (FPS) was launched by the Hong Kong Monetary Authority (HKMA) to improve bank automation
5. Public Consultation on "*Guideline on Authorization of Virtual Banks*" was issued in May 2018



## Appendix 6: Cases of failures and factors responsible

1. Operational Inefficiency (Famo.us, Fashion Playtes, Formspring, Gaopeng, Letao, Stipple)

**Poor management and decision-making lead to excess supply, inefficiencies, and a failure to achieve market acquisition.**

**Famo.us (U.S.)** Founder Steve Newcomb is a perfectionist who did not ascribe to the lean methodology. Without verifying the feasibility of the technology from the beginning, he overbuilt his team, attracting a large number of interested coders on his website and incurring concentrated technology risks.

**Fashion Playtes (U.S.)** When neither traction nor sales took off, Fashion Playtes started offering extensive promotions and discounts, in an attempt to re-engage with existing customers. Discounts were regularly available, and could be up to 25% even for small basket sizes. While such a strategy might build revenue in the short term, it can also quickly burn through profits fairly rapidly with little reward in terms of captured market size.

**Formspring (U.S.)** Formspring's team failed to address anonymous internet harassment and bullying among their user base, insisting on their policy of never publicly revealing its users' identities. On March 22, 2010, a 17-year-old New York high school graduate committed suicide, reportedly after dozens of insulting comments about her had been posted on Formspring in the days leading up to her death. Soon after, a local grassroots boycott of the Formspring site began.

**Gaopeng (China)** Groupon's failure to adapt to the local environment limited its ability to recognize cultural nuances and succeed in the Chinese market. Their senior management team in China comprised only two Chinese members: one from mainland China and the other from Hong Kong. Even Groupon's operations in more remote parts of China were run by foreigners. Thus, cultural conflicts arose whereby employees did not necessarily respect or feel loyal to their managers, resulting in very low efficiency and high employee turnover rates. Meanwhile, their product and service strategies were wholly undifferentiated from thousands of other competitors in the space.



The final blow came from two major scandals in 2011. The first was when internal staff were caught cheating in a lucky draw; which led to the termination of the Vice President, and a public apology from the CEO. In the same year, it was revealed that Gaopeng's luxury watches were actually fakes. Consumers were compensated, but this left an indelible stain on Gaopeng's reputation.

**Letao (China)** From an operational standpoint, Letao failed in 3 aspects: (1) inability to control costs; (2) failure to transform its existing profit model; and (3) an inappropriate company strategy. Firstly, as the company has been growing its customer base very aggressively, investors saw Letao as a very attractive opportunity and invested large amounts of capital in them. The company did not use the investment wisely, making unnecessarily extravagant expenses such as leasing over-the-top offices and expensive online advertisements.

Secondly, as the profit margin was extremely thin for an online distributor, Letao attempted to capture higher profits by creating its own brand. However, the company underestimated the amount of time and marketing required to build brand awareness, and grossly overproduced its products, resulting in huge losses after its launch.

Lastly, Letao pivoted one too many times, and too quickly. When rolling out its new inhouse brand, it changed its business model completely without a transition period, stripping away its then-existing competitive advantage as the biggest online shoe distributor in the market. These high-risk moves did not pay off and eventually cost the owners the entire company.

**Stipple (U.S.)** Stipple shut down in 2014, 18 months after raising capital at a valuation of US\$25 million. With reference to the explosive early-stage funding pre-2014 and the followon investing that did not keep pace, Founder and CEO Ray Flemings explicitly explained that Stipple "had turned on revenue, but did not scale fast enough ... not yet profitable ... Like many companies we got into the Series A crunch and we weren't able to raise more money ... We simply weren't able to get dollars flowing from the marketplace to line up with our expense structure."

## 2. Product/Market Misfit (Blippy, Fashion Playtes, Stratos, Wantful)

**Blippy (U.S.)** Blippy's feature of allowing users to publicise their debit/credit card transactional information did not sit well with majority of their users, who felt that this placed too much sensitive information in the public domain, such as personal purchasing pattern, financial status and location. Moreover, users found it hard to find any value on the platform, since the total number of revealed transactions was still small and very few good bargains could be identified.

**Fashion Playtes (U.S.)** While the platform was targeted at female pre-teens, many of the customers were parents searching for gifts for their teenagers. Fashion Playtes attempted to reach out to teens through their own magazine, which published articles targeted for their age groups, but this did not work as well as they hoped. Moreover, mass customization appealed only to a limited set of customers, who knew what they want, and could afford to invest hours and their creative energy to customize products. The vast majority of shoppers quickly lost patience with the nitty gritty and opted for the typical mass-produced products.

**Stratos (U.S.)** Payment devices like Stratos, Apple Pay and Coin need to work every time to avoid casting doubt in their users' minds. Yet Stratos failed to work about 5% of the time, and failures occurred with no discernible pattern. Using Stratos, especially at smaller retailers, was a difficult and unintuitive process. Clerks had to input the last four digits of the credit card into their card payment processor. However, this was not displayed conveniently on the Stratos processor, so the Stratos user had to retrieve the information via the smartphone companion app and either hand over the phone to the clerk or read off the digits.

**Wantful (U.S.)** Wantful spent large amounts of funds on building over six hundred products. This could have been the founder's preference to build a perfect product catalogue over validating actual demand, given his background in product design. They expanded to other cities before even securing a product/market fit. The expansion resulted in high cash burn rates.

### 3. Poor Market Understanding (Formspring, Gaopeng)

**Formspring (U.S.)** As a platform designed for teenagers, Formspring failed to consistently capture teenagers' attention when it needed to compete with other similar platforms such as Tumblr, ASKfm and MyYearbook's "Ask Me" services, and social media platforms such as Facebook, Instagram and Twitter. In order to survive in the social media market, Formspring had to adjust its business model and features quickly so as to stay ahead of the curve. Unfortunately, Formspring failed to make the necessary changes quick enough to capture a substantial user base.

**Gaopeng (China)** Groupon's China head seemed to think that all international markets were alike – what worked in Germany would work in China. Groupon's sales team in China initially insisted that its partnering vendors split profits 50-50, without considering the realities of China's group-buying environment. Given that so many players existed in the market, vendors have the upper hand when negotiating with group-buying operators and typically leave their partner only 10% of the profits. Groupon also insisted on using mass email marketing, despite being warned that Chinese consumers seldom read those types of email. Such an approach had been successful in Germany, but Groupon ultimately found out the hard way that it would not work in China.

### 4. Poor Product Development (Blippy, famo.us)

**Blippy (U.S.)** Blippy suffered several serious security flops in its short lifespan. In 2010, several of Blippy users' credit card numbers could be found by simple Google searches, which raised the public's concerns over Blippy's capability to safeguard sensitive and personal user data, severely dampening users' confidence in Blippy.

**Famo.us (U.S.)** The value proposition for Famo.us was essentially an over-promised vision. Due to the unpopularity of HTML5 in building in-web apps, Facebook and other major technology companies had pulled out certain applications in HTML5. However, Famo.us insisted on going in that direction without fully testing the feasibility and acceptability of the technology.

### 5. Competition (Gaopeng, Stratos)

**Gaopeng (China)** A latecomer to China's e-commerce arena, the ambitious company said it would combine Groupon's global group-buying experience and

Tencent's deep knowledge of China's online communities. However, Gaopeng did not have any competitive advantages to begin with. Besides financial investments, Gaopeng was unable to derive any benefits from Tencent in terms of online traffic and a better understanding of the local internet market. In fact, Tencent also invested in Ftuan and operated its own group-buy website – QQtuan, which proved to be Gaopeng's largest competitor.

**Stratos (U.S.)** Shortly after the Stratos Card entered the market, it fell victim to new technology and products. Apple Pay was infinitely more convenient, as it did not require a new card and account, or the need to present the physical card during payment. More importantly, Apple Pay was offered completely free of charge. In this case, the lack of exclusive technological advantage was a key factor for the failure.

#### 6. Misvaluation (Famo.us, Wantful)

**Famo.us (U.S.)** The valuation of Famo.us was based purely on the founder's vision, initial sign-ups and a demo. The founder used 57,000+ signups on the company's website as an indicator of future revenue. However, this metric was highly inaccurate, because the signups were merely indications of interest, with no reasonable conversion rates into actual usage. The demo at TechCrunch Disrupt SF 2012 was confusing and lofty, and failed to prove to be a good assessment of the core capability of the venture.

**Wantful (U.S.)** Wantful raised US\$5.5 million in Series A funding, but ran out of cash with a burn rate of over \$300,000 per month (approximately 18 months). Due to low revenue growth rates, Wantful failed to justify higher valuations and rejected down rounds from new investors.

**Appendix 7: Consent form**

**INFORMED CONSENT FORM**

**Title of Project:** Factors for sustainability of FinTech Industry in Nigeria: A survey of users, providers, and regulators.

Name of Researcher: Ngushida Digal Ladagu.

	Yes	No
Have you read the Participant Information Sheet for the above study?		
Have you had the opportunity to ask questions and discuss the study?		
Have you received satisfactory answers to all of your questions?		
Have you received enough information about the study?		
Do you understand that your participation is voluntary, and you are free to withdraw at any time, without giving any reason, and without any penalty?		
Do you understand that interviews will be audio-recorded, and these recordings will be destroyed after the data is coded? Do you consent to this?		
Do you agree to taking part in the above study?		

**Full Name in Capitals:**.....

**Signed:**.....

**Date:**.....

**Full Name of Researcher:** NGUSHIDA DIGAL LADAGU

**Signed:** *n.ladagu*.....

**Date:** 22/12/2019.....

## **Appendix 8: Participant Information Sheet**

### Participant Information Sheet

#### **Research Project Title**

Factors for sustainability of Fintech industry-A survey of Nigerian users, providers, and regulators.

#### **Invitation**

You are being invited to participate in this research project. Before you do so, it is pertinent that you understand the reason why the research is being done, and what it entails. Kindly take some time to read the following information carefully and possibly discuss with others if you wish to do so. Kindly refer to us for any clarity or more information required, and then decide if you will like to take part in the research. Thank you for reading.

#### **What is the project's purpose?**

This study seeks to provide an extensive overview of up-to-date trends and the growth drivers that have in one way or the other affected the industry in the past. It also seeks to highlight critical success factors and serve as guide in developing a framework that ensures sustainable operations in the Nigerian FinTech industry and establishing its position in the global FinTech landscape

#### **Why have I been chosen?**

You have been chosen because as a major player in this industry, you will have knowledge about the information required to make the study a success.

#### **Do I have to take part?**

You can decide whether to take part or not. If you do decide to take part, you will be able to keep a copy of this information sheet and you should indicate your agreement to the online consent form. You can still withdraw at any time, without giving any reason.

#### **What will happen to me if I take part?**

You will be asked to complete a web-based questionnaire which we estimate will take you 15 minutes. You may also wish to agree to a follow-up interview to find out more about your approach.

#### **What do I have to do?**

Please answer the questions in the questionnaire and/or interview. There are no other commitments or lifestyle restrictions associated with participating.

**What are the possible disadvantages and risks of taking part?**

Participating in the research is not anticipated to cause you any disadvantages or discomfort. The potential physical and/or psychological harm or distress will be the same as any experienced in everyday life.

**What are the possible benefits of taking part?**

Whilst there are no immediate benefits for those people participating in the project, it is hoped that this work will have a beneficial impact continuous, or sustainable operations of FinTech industry in Nigeria. Results will be shared with participants in order to inform their professional work.

**What happens if the research study stops earlier than expected?**

Should the research stop earlier than planned and you are affected in any way we will tell you and explain why.

**What if something goes wrong?**

If you have any complaints about the project in the first instance you can contact any member of the research team. If you feel your complaint has not been handled to your satisfaction you can contact the University of Wales Trinity Saint David to take your complaint further.

**Will my taking part in this project be kept confidential?**

All the information that we collect about you during the research will be kept strictly confidential. You will not be able to be identified or identifiable in any reports or publications. Your organization will also not be identified or identifiable. Any data collected about you in the interviews and/or online questionnaire will be stored online in a form protected by passwords and other relevant security processes and technologies.

Data collected may be shared in an anonymised form to allow reuse by the research team and other third parties. These anonymised data will not allow any individuals or their institutions to be identified or identifiable.

**Will I be recorded, and how will the recorded media be used?**

You will not be recorded in any way other than your input to the interview and/or questionnaire without separate permission being gained from you.

**What type of information will be sought from me and why is the collection of this information relevant for achieving the research project's objectives?**

The interview and/or questionnaire will ask about your opinions and current practices in Nigerian FinTech space. Your views and experience are just what the project is interested in exploring.

**What will happen to the results of the research project?**

Results of the research will be published. You will not be identified in any report or publication. Your organization will not be identified in any report or publication. If you wish to be given a copy of any reports resulting from the research, please ask us to put you on our circulation list.

**Who has ethically reviewed the project?**

This project has been ethically approved by the Information School's ethics review procedure and subsequently endorsed by the ethics procedures of University of Wales Trinity Saint David. The University of Wales' Research Ethics Committee monitors the application and delivery of the University's Ethics Review Procedure across the University.

Contacts for further information

Ngushida Digal Ladagu, Business School, University of Wales Trinity Saint David, London School of Commerce Campus, UK. Email [L0174woewoe1015@student.lslondon.co.uk](mailto:L0174woewoe1015@student.lslondon.co.uk)

Thank you for taking part in this research.



## **Appendix 9: Interviews**

### **Unstructured (6 respondents)**

#### **Respondent $\alpha$ : Head of e-Banking (Banking)**

##### **Question 1:**

Sir, how do you describe the activities of FinTech companies in the country?

Response:

First, we should understand what are FinTech companies before we get started. FinTech is a broad term that embodies all innovative technologies geared towards financing and other services. Simply put, FinTech companies are companies that render financial and other services that are based on technology-enabled innovations.

Back to your question, the activities of FinTech companies in the country can be classified into four. These are financing, payment and infrastructure, data security and monetization, operations and risk management.

The benefits of these companies cannot be over emphasized. They have decentralized and diversify the economy in areas of lending and data processing. They have brought efficiency in rendering financial services. They have also improved access and convenience in areas where traditional DMBs are not available.

##### **Question 2:**

Does the CBN consider FinTech companies as threat to traditional banks?

Response:

The CBN does not consider FinTech companies as threat to DMBs or any traditional bank. In fact, the CBN has built an ecosystem that allows all players in the financial sector to have an equal opportunity to carry out their activities and manage any platform.

##### **Question 3:**

According to KPMG (2018 Report): The National Financial Inclusion Strategy (NFIS) launched in October, 2012 with the overall target of reducing the number of adults excluded from financial services from 46.3% in 2010 to 20% in 2020. Is this target feasible?

Response:

Yes it is very feasible. It has been achieved in North America and Europe. We can do same here. In order to achieve it, the CBN introduced FinTech companies into its payment system. This will help to deepen financial inclusion in the country. But it will not be possible if FinTech companies do not comply with the CBN guidelines.

**Question 4:**

Where are we with the 2020 vision of 80% inclusion? About 36.6 million Nigerian adults, representing about 36.8% of the Nigerian adult population, still do not have access to formal financial services (according to the Enhancing Financial Innovation and Access (EFInA) Department of the CBN).

Response:

That Figure is for 2018, we have since passed that level. In 2012, the CBN adopted the National Financial Inclusion Strategy (NFIS), which articulated the demand side, supply side and regulatory barriers to financial inclusion. This strategy has since yielded significant results over the years. It has clear focus, specific targets and key performance indicators (KPIs). Even if attaining 80% inclusion by 2020 seems dwindling, it is achievable.

There are measures to build a robust payment infrastructure and expansion of agent locations across the country. The financial exclusion rate for Nigerian adults dropped from about 46.3% in 2010 to 36.8% as at the end of 2018, which was about 10% reduction within a period of 8 years. In mid-2019, the 36.6 million adults (36.8%) dropped further to 34.2%, a reduction of about 2%. So we have made concrete effort and we are still working as a team to achieve this vision. The target is to financially excluded adults to 20% by 2020, that is 80% financial inclusion. We have a vision of 95% inclusion by 2024 and we are going to achieve it.

**Question 5:**

Like you said, it is achievable but dwindling. What have been done by the CBN to attain this 2020 vision of 80% inclusion?

Response:

The Central Bank issued 15 super-agents licenses and 3 payment service bank licenses to telecommunications and FinTech companies just to build a financially inclusive economy. More licenses are still been issued to support improved payment system and deepening financial

inclusion in the financial sector. Presently, over \$400 million have been invested in the FinTech sector just to support effective payment services in the country.

We have a road map to achieve this vision. It itemizes the processes to include youths, women, rural areas and northern part of the country. We targeted a total of 16.5 million adult Nigerians, which was broken down to 8.3 million by the end of 2019 and 8.2 million adults inclusion by the end of 2020.

The CBN is working with organizations like SANEF and EFINA to support the activities of financial services agents and to achieve vision 2020 of 80% inclusion.

The NFIS has five priorities which the CBN is still pursuing till date. These are creating enabling environment for the excluded, creating enabling environment for the FinTech companies or Digital Financial Services (DFS) providers, enhancing the rapid growth of agent network, improving the adoption of cashless payment channels and harmonizing KYC requirements for new and existing accounts.

**Question 6:**

Why is Financial Inclusion in Nigeria lagging compared to what is obtainable in some other African Countries?

Response:

The reasons are simple. Firstly, there is lack of infrastructure making it impossible for some adults in rural areas to be captured or included. Secondly, more than of Nigerian adults do not have access to financial services. Some of them are unaware of mobile financial services. Nigerians still prefer transactions in cash to online transacts. Over 40% of Nigerian adults generate income from the informal sector.

**Question 7:**

KYC Tier 1 ID shows that 62.8% of the adult population were found to have a mobile phone in 2014, and therefore would be able to open a KYC Tier 1 bank account. The 59% target, therefore, was reached. Feedback from Fintech Lenders has shown that it is not enough KYC for them to lend and as such turning away customers or offering them ridiculous amounts.

Response:

Due to the dual threats of identity theft and fraud, coupled with the issue of insufficient KYC, FinTech companies find it difficult to lend on their platforms. The CBN has given sufficient guidelines to minimise cybercrimes and enable FinTech companies have enough KYC to ensure trust and more lendings to customers. Compliance is not simple. Companies have to meet KYC requirements, perform AML screening, embark on client monitoring and take some preventive measures against fraud and risk.

With the increasing number of adult population having mobile phone, the future is definitely bright. It is believed that in the nearest future substantial amounts will be given as loans. We are working on it. We have gathered relevant information on compliance with the CBN guidelines because with this compliance there will be security and trust, and more money will be given as loans. We are also trying to increase the financial support to FinTech sector so as to enable them lend more through their platforms.

**Question 8:**

26 million accounts were reported dormant in 2015, 36.7M in 2017 and 46.7M in 2018. And according to NIBSS, inactive accounts grew faster than active accounts in the past 5 years, 73% growth in inactive and 35% growth in active. What strategies do you think should be put in place to prevent such, as it is working against the financial inclusion target of the CBN?

Response:

Dormant accounts cannot be prevented. It can only be managed. When a man decides not to fund an account, there is nothing the bank or CBN can do about it. However, there are measures put in place to manage such accounts to minimise the incidence of inactive accounts. Once an account has become dormant, it must be reported quarterly to the supervision department of the CBN. The owner of such an account or he representative will be contacted. After three months of dormancy the owner will be informed. If he is dead, the next of kin will be informed.

We try to create transparency in the system. Dormant account balances will continue to reflect in the books of banks and they shall be covered by Deposit Insurance Scheme. The revalidation of dormant accounts doesn't attract any cost to the owner of the account. This is to encourage them to activate their inactive accounts.

**Question 9:**

While interviewing various sections of users, it was discovered that many have abandoned their accounts for different reasons of which BVN complexity and lack of lending were part of. We also know that lending is one of the main income streams for financial institutions. From what we have seen, the regulatory body is putting more efforts in rolling out PSBs and Agent bankers as part of the financial inclusion strategy. These PSBs and agent bankers are restricted from lending, which means that they are likely to end up with dissatisfied and run-away customers. While other Fintech players that have the licences to lend have said that the major hurdles to FinTech growth are regulation, corporate governance, partnerships, funding and intellectual property protection. Most of these hurdles are pointing to the regulatory body. Is the body aware of these as issues impeding the achievement of financial inclusion, and what might be the possible solutions?

Response:

Yes, some of the reasons for dormant or inactive accounts have been traced to BVN complexity as you put it and lack of adequate lending. We are aware of the mentioned factors and we are working on these challenges. The CBN has the primary responsibility of regulating financial services in Nigeria, but we are not the sole regulatory body when it comes to regulating FinTech operations. There are others such as the Nigerian Deposit Insurance Corporation (NDIC), the Financial Services Regulations Co-ordinating Committee and the Nigerian Communications Commission (NCC). The NDIC protects deposits, the FSRCC promotes safe, sound and efficient practices by financial intermediaries, while the NCC regulates FinTech activities where mobile services are involved.

The CBN has given effective regulation guidelines to ensure best financial practices, efficient corporate governance, effective partnerships and adequate funding for FinTech companies. We have also made effort to ensure adequate intellectual property protection just to achieve our goal of financial inclusion.

**Question 10:**

Given these hurdles, how would you rate the current performance of FinTech companies in Nigeria?

Response:

The Nigerian FinTech sector could be said to be far above average. In fact, it is no longer news that some Nigerian FinTech companies are gaining worldwide attention of investors. For

instance, CowryWise, a FinTech company, which helps Nigerians to invest in government bonds, was selected to take part in the Silicon Valley-based Y Combinator accelerator in July 2018. Paystack, another FinTech company, was able to raise about \$80 million in 2018 from Visa, Tencent and Y combinator. That same year, Paystack had close to 18000 live merchants, which includes MTN, Taxify, Dominios, and even the Lagos State Internal Revenue Service. You can see that FinTech companies are doing significantly well in the country.

**Question 11:**

The agent banking approach has had limited success in Nigeria, despite the huge potentials, and has suffered challenges around its viability. (WHY)?

Response:

The idea of agent banking was born out of the desire to achieve the vision 2020 goal of 80% financial inclusion and reduction in poverty. However, it has not been well appreciated by the public. It is meant to penetrate areas that traditional banks couldn't cover. This has not been achieved. Regrettably, beneficiaries like rural dwellers and SMEs do not seem to appreciate it. Consequently, transaction cost is still very high. This is because most rural dwellers still have to travel to urban areas where traditional banks are available and waste alot of time queuing for services.

**Question 12:**

We talk about PSBs adopting innovative approaches for truly knowing their customer's expectations through their habits, purchase patterns, and online activity. PSBs are required to add a layer of analytics around the Customer Information Record (CIR) that dynamically processes past transactions data, call history, as well as additional data shared by customers, including social media activity data. What impact will this have in terms of consumer protection or customer privacy settings?

Response:

This is quite simple. The idea of processing past transactions data, call history, as well as additional data shared by customers, is to ensure that trust is built in the sector, consumers are given more protection and risk of online transactions is minimized. Customer Information Record (CIR) is another way of promoting KYC. For the purpose of KYC, all categories of customers have been taken care of by the CBN guidelines. For customers under the Tier 1 account, their names and phones numbers are required, while for customers under the Tier 2 and

3 categories, they are required to comply with the requirements of Tiered KYC. All these requirements are to minimise fraud and also guarantee consumer protection.

In view of its goal of financial inclusion, the CBN authorised the services of Payment Service Banks. They are expected to leverage on mobile and digital services to enhance financial inclusion. Accordingly, PSBs are expected to support transactions in remittance services, withdrawal services and micro-savings in a very secured technology-driven platform. PSBs services are supervised by the CBN. They are required to maintain robust, effective and efficient AML/CFT software solutions to maintain thresholds and to guarantee customer privacy. PSBs shall comply with the Money Laundering (Prohibition) Act, 2011 which means consumers' data are highly protected.

**Question 13:**

The Central Bank of Nigeria (CBN) Governor, Godwin Emefiele recently made a comment through his Deputy Governor, Economic Policy Directorate, Okwu Nnana that FinTech is a threat to the banking industry. In his words, he said “In our industry we have common threat, the threat posed by fintech. I call on CIBN to up its ante. As far as advocacy is concerned, it should be your major focus, to find lasting solutions to the threats posed by fintech,” With such notion of the FinTech, how is it possible to believe the regulatory body is also working in favour of the growth of this industry and not of the traditional banks?

Response:

The services of FinTech companies have become very popular among Nigerians particularly in urban areas. There is high level of penetration in urban areas. The CBN has recognized this fact, but fear their emergence would increase existing risks in the financial sector. Consequently, the CBN formulated some policy regulations to regulate the activities of FinTech. These policies are not anti-FinTech but rather geared towards the protection of the company and the consumer. The CBN Governor, Mr. Godwin Emefiele, is therefore not against FinTech activities in the country. He wants the best for the financial sector and the country as a whole. The policies of the CBN are already yielding positive results. The FinTech companies in Nigeria are among the few companies in Africa that have become the most coveted by both domestic and foreign investors. There are policies that tend to favour FinTech firms. For instance, the implementation of policies

that encourage mobile banking, agent banking, boost the utilization of unstructured supplementary service data (USSD) and payment service have given FinTech companies competitive edge over commercial banks.

**Question 14:**

In a related development, the Divisional Head, FinTech & Innovation at GTBank, Deji Oguntonade, said that FinTech companies will always be partners to the banking sector. According to him, the real threats are consumer internet companies — like Google, Facebook and WhatsApp, with products such as Apple Pay, Google Pay, Alipay, etc that are exploring the financial and payment space. These Internet giants continue making efforts to serve their users at every point of their need, both socially and financially. Do you also see that as a threat?

Response:

Mr. Deji Oguntonade is right to some extent. Consumer internet companies are much more difficult to regulate than FinTech companies. Internet affordability and accessibility are the main reasons why these consumer internet companies are becoming a threat to commercial banks. Another reason for the growth of these consumer internet companies is the low price consumers pay for access. But like I said earlier, there are policies that tend to favour FinTech firms over traditional banks such as the implementation of policies that encourage mobile banking, agent banking, the utilization of unstructured supplementary service data (USSD) and payment service. To a large extent, FinTech companies are still threat to commercial banks in Nigeria. They render financial services with ease and convenience, which traditional banks cannot offer.

**Question 15:**

In 2018, the Central Bank of Nigeria launched a regulatory sandbox for FinTech start-ups tagged ‘Financial Industry Sandbox’. The purpose of the sandbox is to enable innovation by allowing for experimentation and rapid cycles of adjustments in a contained environment without full compliance with all regulations. However, the sandbox is yet to begin operation. The CBN is still being expected to compile a list of interventions for which a regulatory sandbox is necessary and define eligibility criteria for the interventions to be allowed to run in the sandbox. Is that a project that has begun?



Response:

Yes, it has begun. It was recently launched on the 9<sup>th</sup> of December, 2019 by the Financial Services Initiative (FSI). The ‘Financial Industry Sandbox’ is a software testing platform where FinTech start-ups and other financial innovators can test run their innovations or products using the application programming interfaces (APIs) of existing companies, learn from past experiences and make informed decisions. Presently, the sandbox has basic APIs from NIBSS which innovators can use upon registration.

The FSI is supported by the CBN and the Nigerian Inter-Bank Settlement System (NIBSS), which created the ‘Financial Industry Sandbox’. It is a giant stride to take the financial sector to the next level. It benefits the CBN, FinTech start-ups, innovators, investors and customers, The Sandbox will enable the CBN to test financial innovations by FinTech companies. It helps to align regulations and compliance with the rapid growth of FinTech companies. It would provide a safe space for banks and FinTech start-ups to test novel concepts and products. This is to enable the country to become a FinTech hub. It would also help to attract investment to the financial sector. FinTech companies will have the opportunity to work with the CBN while testing their products in a live market. The CBN, on the other hand, can develop appropriate regulatory policies through greater visibility into new innovations.

**Question 16:**

Sir, how would you like to describe the FinTech story in Nigeria?

Response:

It has been a success so far. Although alot has to be done, we have actually been recognized in the world. In fact our cards can be used anywhere in the world. That on its own is a great achievement and this is possible because we comply with the best practices in the world. I confidently say this anywhere I go.

**Question 17:**

That was great. What do you feel is the biggest issue that FinTech will have here within Nigeria?

Response:

The biggest issue with the FinTech sub-sector, like other financial sub-sectors, is fraud. The sector is greatly affected by cybercrime. This reduces public trust in the sector. We have to design a set of special guidelines to serve as mechanism to check this menace. This was realised by the assemblage of experienced team with members that are exceptional when it comes to

FinTech operations and cutting edge technology. All FinTech companies have to do is just to ensure 100% compliance with these fine regulations.

**Question 18:**

Is there any other thing you want to add?

Response:

We have stated our clear focus at the beginning of the FinTech journey and haven't deviated. The aim of the CBN is to provide a stress-free experience for all Nigerians by creating platforms that enable smarter living. FinTech solutions are guided by three core business drivers. These are easy, fast and secured.

I will also want to say that if commercial banks make use of agents in rural areas they will be able to cut down transaction cost, the agent banking programme will be more effective, they will be able to penetrate rural areas and the Vision 2020 of 80% financial inclusion will be easily achieved.

Thank you, sir, for your time and cooperation.

**Respondent β- Deputy Director (Regulation)**

**Question 1:**

Basically, how aware of FinTech are you?

Response

I am very aware of FinTech platforms and operations. I have been in charge of digital banking for some years now.

**Question 2:**

Do you consider FinTech companies as a serious genuine competitor for the traditional banks in the future?

Response:

FinTech companies are already genuine competitors for traditional banks in the country. They have disrupted the way banks operate or conduct their services. FinTech companies make it easier to pay, withdraw and lend money, something that banks couldn't do.

**Question 3:**

In what areas do you see the greatest potential impact of FinTech's disruption of traditional financial services, lending, currencies and investing?

Response:

The greatest potential impact of FinTech's disruption of traditional financial services will be on currencies. FinTech's financial solutions have the greatest effect on money itself as a medium of exchange. It has changed the system of payments. One can trade without the use of physical money. The cashless policy of the CBN encouraged digital transactions which made FinTech companies to flourish. Most FinTech solutions are substitutes for traditional banks' product.

**Question 4:**

What segment of the Nigerian market do you feel FinTech is seeing the greatest adoption growth?

Response:

The greatest adoption growth of FinTech solutions is in the area of services that substitute for cash payments. Digital or online payments platforms are the most patronised platforms by consumers. This is because they are convenient, easy and quicker.

**Question 5:**

What is the reason for the growth of FinTech in Nigeria?

Reason:

These companies experienced initial rapid growth but after series of regulations by the CBN there is a slow growth due to barriers to entry. The reason for the initial growth, like I have said, is that these companies make payments and transfer easier, lending becomes quicker.

**Question 6:**

In the American market, we always say Silicon Valley and places like that are the best for FinTech, over 3 billion in the last few years. Do you feel that the government would be willing to invest in that large kind of scale here or let say do you see that happening on a larger scale, the same way we'd see maybe Silicon Valley or towards the London kind of experience?

Response:

The government has already developed a roadmap to invest in the FinTech sector. Silicon Valley is what it is today because of the huge investment in the sector. The Nigerian government, in collaboration with the African Development Bank (AfDB), developed this plan in 2018 to encourage start-ups FinTech companies in the country. A long term plan of \$500 million

innovation fund was determined for these start-ups. There is also another \$500 million technology innovation fund by the AfDB. These funds, when fully available and judiciously used, will give us something close to the Silicon Valley experience.

**Question 7:**

Is there any FinTech start-up that First Bank may support or take on board at an early stage and kind of get involved with, or is it more of a case that you have your own Lab and you're going your own direction?

Response:

I am not in the position to give such information. There is none I am aware of for now. The board may have or may not have any plan of such. But I am aware of the fact that the startup and sustainability of FinTech requires huge capital investment, something that a bank like First Bank can afford. We already have some digital products which customers can access online. I will not be surprised if the board decides to support a startup company soon.

**Question 8:**

Talking about sustainability, do you think the FinTech sector is sustainable given the regulations and financial barriers for start-ups?

Response:

I think it is sustainable. There are FinTech companies that already have foreign support, though not all of them are that fortunate. They are providing seasoned services which make the sector sustainable on its own. The sustainability in the Nigerian financial space requires start-ups to have access to Nigerian capital market, which they don't have. A committee was set up by the Security and Exchange Commission sometime in 2018 to solve this problem, but I don't know if it has been resolved.

**Question 9:**

And would you know of any other, we'll say, kind of start-up FinTech companies, are coming to Nigeria that would be worth having a look at?

Response:

There are some FinTech companies coming into the country. This will increase the competition in the sector. The Nigerian economy is a large market. There is rumour of companies like Credit Karma from America, JD Finance from China, Ripple from America, there is another from India, investing in Nigeria by 2020. The only problem is the new Treasury Bill by the CBN. This has

negative impact on start-ups. FinTech companies that are into savings will be adversely affected. The TB is now 5% for a ninety-day tenor, which was formerly around 10.5%. This has the potential of making start-ups to lose money and expose them to higher risk. Also, FinTech companies that are into lending will also reduce lending rates since reduction in TB will force lending rates down.

**Question 10:**

The Nigerian government and CBN have given strong warnings about cryptocurrencies. What is your take on cryptocurrencies operation and CBN's stand in Nigeria?

Response:

A cryptocurrency is any medium of exchange which uses what we call crypto-graphical function to conduct financial transactions online through the internet. I support the CBN's stand on cryptocurrencies operation in the country. The CBN has made it known to all banks and the general public that the activities of the dealers in cryptocurrencies are not licensed by the CBN. In other words, their activities are not regulated by the apex bank. It is therefore very risky to partake in cryptocurrency. It has been used as a medium to dupe gullible Nigerians.

**Question 11:**

**How is FinTech influencing the landscape of the financial services industry, and how can traditional financial players embrace the rise of FinTech companies?**

**Response:**

These companies have great influence on the financial landscape. Things are no longer business as usual since the emergence of FinTech. Collaborating with or competing against FinTech companies, banks just have to recognize the fact that these companies have come to stay. They have disrupted how financial services are being rendered. They have made these services easy. They save time and deliver with less transaction costs, something that banks couldn't do. They have gotten impressive user adoption. Traditional financial players should embrace the rise of these FinTech companies by investing in these platforms and working in collaboration with them. Competing against them will do banks more harm than do. Banks need to develop more digital products and offer solutions that are easy to access.

**Question 12:**

**How can banks disrupt and reinvent themselves and turn digital into a positive asset in our new digital area?**

Response:

Like I just said, banks need to develop more digital products and offer solutions that are easy and convenient to consumers. The industry has become very competitive. FinTech companies have combined digital technology and innovative delivery practices to give convenient financial services. Banks have been forced to step up their game in order to survive in the market. We at First Bank have decided to reinvent by collaborating with FinTech companies to enable us leverage on emerging technologies and sustain our market share. Hopefully, in the future we will invest in the FinTech sector.

**Question 13:**

What can we do in terms of regulation? Is it good to keep the barriers down low or is it something we're going to focus on in terms of the FinTech industry?

Response:

These companies are already disrupting the financial sector, they are continuously changing the financial landscape. They are affecting our operations as banks. I don't think the barriers should be kept low. The CBN has the primary responsibility to protect banks and the financial sector in general. These regulations have helped to control entry into the sector and given banks some shield. More FinTech companies will spell more doom for us as banks. The public prefer patronizing FinTechs for services banks also render because of the ease and convenience. If banks are affected or decide to go completely digital, as already trending right now, a lot of persons will lose their jobs.

**Question 14:**

In a related development, the Divisional Head, FinTech & Innovation at GTBank, Deji Oguntonade, said that FinTech companies will always be partners to the banking sector. According to him, the real threats are consumer internet companies — like Google, Facebook and WhatsApp, with products such as Apple Pay, Google Pay, Alipay, etc that are exploring the financial and payment space. These Internet giants continue making efforts to serve their users at every point of their need, both socially and financially. Do you also see that as a threat?

Response:

Of course, they are gradually becoming threat with a change in the paradigm. Consumer internet companies, like Google, Facebook and WhatsApp, were ordinarily not threats to banks. But with the introduction of products like AliPay, Apple Pay and Google Pay, that are exploring the financial and payment space, they have become threat to us. So Mr. Deji Oguntonade is right. But I beg to disagree with him a little. FinTech companies will not always be partners with banks. They have some competitive products. And FinTech companies are more of a threat than these consumer internet companies, which are limited to just payment solutions.

**Question 15:**

The Central Bank of Nigeria (CBN) Governor, Godwin Emefiele recently made a comment through his Deputy Governor, Economic Policy Directorate, Okwu Nnana that FinTech is a threat to the banking industry. In his words, he said “In our industry we have common threat, the threat posed by fintech. I call on CIBN to up its ante. As far as advocacy is concerned, it should be your major focus, to find lasting solutions to the threats posed by fintech,” With such notion of the FinTech, how is it possible to believe the regulatory body is also working in favour of the growth of this industry and not of the traditional banks?

Response:

From the onset, the CBN identified the fact that FinTech companies are a serious threat to traditional banks. One of the primary objectives of the CBN is to consolidate the financial sector. This has not been easy for the apex bank. FinTech companies emerged with products that are substitutes for some banks’ products. This created competition. They disrupted the financial system and if the CBN Governor, Mr. Godwin Emefiele, does not proactively put regulations and mechanisms in place to check them, FinTech can cripple banks. I think in his recent statement made through his Deputy Governor, Economic Policy Directorate, Okwu Nnana, the CBN Governor wanted banks’ boards to understand this, that FinTech is a threat to the banking industry. The CBN made some vital policies to regulate the activities of FinTech companies. These policies are to ensure the growth of banks and the FinTech companies, and at the same time ensure trust in the financial system. The CBN Governor, Mr. Godwin Emefiele, is therefore not against FinTech activities but tried to regulate both banks and FinTech so that both can function in the Nigerian economy healthily.

**Question 16:**

This year, the CBN began contemplating ways to get banks to lend more. And so it issued a new policy which ordered banks to increase their loan-to-deposit (LDR) ratio to a minimum of 65% by December 31, 2019 and any bank that failed to comply will be forced to keep more cash with the CBN and earn no interest on them. Looking at this table, First Bank has surpassed that level already. But a general question to the banks is why are banks withholding lending when there are willing customers waiting to take?

Response:

The banking sector is all about being financially consolidated. There is no bank that gives all its funds as loans. Cash must always be available for customers' withdrawal. And lending is dependent on some factors like interest rate, the demand for loans, investment, risk involved, etc. Banks actually want to make more profits, so there is no bank that doesn't want to give out loans when the funds are available. They just have to be careful to avoid bad debts. What we are having now is a situation where banks are forced increase their loan-to-deposit (LDR) ratio to a minimum of 65% by December 31, 2019 just to avoid the consequence.

**Question 17:**

Is this increase in LDR seen as a move by the regulatory body to cripple the advantage that FinTech has had over the banks?

Response:

One of the advantages of FinTech companies over traditional banks is the ability to lend at low interest rates. This has an adverse effect on banks. Therefore, the order given by the CBN to all banks to increase their minimum loan-to-deposit ratio to 65% is to enable these banks survive the competition in the industry, not to cripple FinTech companies, which are already having high customer attention and adoption.



**Question 18:**

Talking about financial inclusion, lending is one of the strategies that have yielded better results. Has this mandate of minimum loan-to-deposit ratio to 65% put your bank under pressure?

Response:

Of course, there was immense pressure on all banks. Banks that couldn't meet up with this condition will face higher cash-reserve requirements. Believe me, no bank wants that.

The good thing is that with more loans to investors, there will be the advantage of increasing customer adoption, increasing financial inclusion and more profits for banks. It also has the advantage of boosting economic growth in the long run. This mandate therefore is a push policy to encourage banks to do what they ought to have done. According to a reliable source, the mandate came as a result of some lenders' failure to meet an earlier deadline to ramp up lending.

**Question 19:**

Infrastructure remains a challenge and where it exists startups can sometimes find it difficult to access it. For example, the National Collateral Registry was launched in 2016 and it has been successful with over 16,236 financing statements for 20,684 movable assets, valued at N392 billion recorded on the registry. However, startups have not really benefited from it as they should. As Rahmon Ojukotola pointed out, "A closer look at the data shows the NCR has not been as beneficial to fintech start-ups, with only one non-bank lender using the platform as at August 2017". What do you think of the National Collateral Registry, and how relevant is it?

Response:

Infrastructure has been a serious challenge for FinTech start-ups in not only Nigeria but Africa as a whole. Since 2016 when the National Collateral Registry was launched, it has achieved very minimal success. The NCR is yet to have a major positive impact on FinTech start-ups, as Rahmon Ojukotola rightly pointed out. There is lack of a database system in Nigeria. This is the major problem NCR wants to eliminate, and if this database system is even available, there is the serious problem of lack of power supply to access the system. If and when it does, the FinTech

sector will be more consolidated and secured. Issues of fraud or cybercrimes will be minimised with the provision of a secured database system. But this will have negative impact on traditional banks, because with more trust and patronage for FinTech products, there will be decline for banks' products.

**Question 20:**

That was great. What do you feel is the biggest issue that FinTech will have here within Nigeria?

Response:

The biggest issue will be cybercrime due to inadequate security and poor database system. There is the problem of inadequate infrastructures. Infrastructure remains a challenge and where it exists startups can sometimes find it difficult to access it, as we already noted. This is the main reason why the National Collateral Registry was launched in 2016. Though it is yet to have significant impact on the FinTech sector in Nigeria.

**Question 21:**

Is there anything you would like to add at this juncture?

Response:

I will want to clear the air on the minimum loan-to-deposit ratio of 65%, which was a mandate given to banks by the CBN to meet up with before the end of this year. It shouldn't be seen as a policy against the growth of commercial banks in the country. In fact, the West African Nations' banking regulator first raised it from 60% to the said 65%. The main reason was to sustain the moment and increase the rate of lending to promote economic growth in the region. As the name implies, commercial banks are for profit-making. With more loans given, more profits will be made. It is already yielding positive result. According to the CBN report this year, gross credit increased by 16.4 trillion naira as at the end of May this year.

Thank you sir for your time and cooperation.

**Respondent  $\gamma$ : CEO, Payments (Incumbents).**

**Respondent  $\delta$ : CEO, Payments (Incumbents).**

**Respondent  $\varepsilon$ : CEO, Payments (Incumbents).**

**Respondent  $\zeta$ : CEO, Payments (Incumbents).**

**Questions:**

- Basically, how aware of FinTech are you?

Respondent 1	I am very aware of the potentials in the FinTech sector. Its benefits in terms of cash deposits, cash withdrawals, funds transfer, bills payment, merchants payment, issue debit cards, etc.
Respondent 2	I have a good amount of awareness about the FinTech industry before setting up one in Nigeria. I was aware of how it could be beneficial to the public by easing cash deposits and withdrawals, funds transfer, bills payment, and other financial services on their mobile phone by leveraging on the telecommunication infrastructure.
Respondent 3	I have an indepth knowledge of the FinTech complexities and how it works, the benefits to the firm, individual and the whole economy.
Respondent 4	I have a sound knowledge of how FinTech companies could provide consumer-facing platforms for airtime and data purchase, fund transfers, bills payment, merchants payments, and the likes, and other opportunities in the FinTech market.

- So what are the categories of companies in the FinTech Industry?

Respondent 1	There are 4 categories of companies offering PSP solutions globally: Payment Service Providers, Payout Solution Providers, PSP enablers and PSP connectors.
Respondent 2	PSP solutions are offered by four categories of companies: Payment Service Providers, PSP enablers, Payout Solution Providers and PSP connectors.
Respondent 3	There are four main categories of companies that offer PSP solutions. We have PSP enablers, PSP connectors, Payment Service Providers and Payout Solution Providers.
Respondent 4	Globally, there are four categories of operators in the FinTech industry. These are Payment Service Providers, Payout Solution Providers, PSP enablers and PSP connectors.

- What are the services provided by these companies?

Respondent 1	<ul style="list-style-type: none"> <li>i. Payment Service Providers processes payments in the internet channel.</li> <li>ii. Payout Solution Providers render marketplace services, they specialize in mass payout solutions, people selling their wares or items on a marketplace like eBay.</li> <li>iii. PSP enablers are players that offer several services and/or capabilities to PSPs to enable them provide payment services efficiently.</li> <li>iv. PSP connectors like Zooz and APEXX connect merchants to multiple PSPs or e-wallets through a single API.</li> </ul>
Respondent 2	<ul style="list-style-type: none"> <li>i. Payment Service Providers provides connections to process payments in the internet. They also offer other financial services to their customers.</li> </ul>

	<ul style="list-style-type: none"> <li>ii. PSP Connectors help merchants to connect to multiple PSPs and to save cost.</li> <li>iii. Payout Solution Providers offer services to the clients to enable them pay users of their service platforms.</li> <li>iv. PSP enablers, as the name implies, enable PSP companies to provide payment services effectively.</li> </ul>
Respondent 3	<ul style="list-style-type: none"> <li>i. PSP enablers</li> <li>ii. PSP Connectors offer merchants the option to connect through a single API to various PSPs, e-wallets and acquirers.</li> <li>iii. Payment Service Providers specializes in processing payments in the internet channel.</li> <li>iv. Payout Solution Providers specializes in global mass payment solutions. They help merchants that need to pay users of their marketplace or service platform.</li> </ul>
Respondent 4	<ul style="list-style-type: none"> <li>i. Payment Service Providers is an aggregator of connectivity and financial flows. They specifically provide payments solutions.</li> <li>ii. Payout Solution Providers render marketplace services, they specialize in mass payout solutions, people selling their wares or items on a marketplace like eBay.</li> <li>iii. PSP enablers are players that offer several services and/or capabilities to PSPs to enable them provide payment services efficiently.</li> <li>iv. PSP connectors, like Swappt, Zooz and APEXX FinTech, specialize in connecting merchants to multiple PSPs, e-wallets or acquirers through a single API.</li> </ul>

- **There is no doubt that you are one of the few investors who have initiated the FinTech road map in Nigeria. What inspired you to embark on this FinTech Road Trip?**

<b>Respondent 1</b>	<b>To create a dynamic ecosystem that will bring in seamless and innovative financial services for the bank and unbank population. To ease withdrawal of cash and payments of all sorts of bills.</b>
<b>Respondent 2</b>	<b>The need to facilitate electronic circulation of money as well as exchange of values between individuals and organizations on a timely and consistent basis.</b>
<b>Respondent 3</b>	<ul style="list-style-type: none"> <li>i. <b>To generate and manage payment infrastructures.</b></li> <li>ii. <b>To deliver innovative payment products and transactional services within and outside Nigeria.</b></li> </ul>
<b>Respondent 4</b>	<b>The desire to fill the gap between the bank and non-bank public. To ease e-payments and to also expand from traditional payments to insurance, lending, saving and investments.</b>

- **What aspect of FinTech does your organization specialize in?**

<b>Respondent 1</b>	<b>E-wallet, payment solution service providers</b>
<b>Respondent 2</b>	<b>Card brands and Bill payments platforms and mobile money operators</b>
<b>Respondent 3</b>	<b>Agency banking, payment terminal service providers</b>
<b>Respondent 4</b>	<b>Bill payments platforms and some other similar services.</b>

- **What are the categories of licence we have in Nigeria?**

Respondent 1	<b>There are 3 major categories. These are PSP (Super Licence) (Cap 10), PSP (Standard Licence) (Cap 30) and PSP (Basic Licence)</b>
Respondent 2	<b>We have three main types: PSP (Super Licence) (Cap 10), PSP (Standard Licence) (Cap 30) and PSP (Basic Licence)</b>
Respondent 3	<b>There are three categories of licence in Nigeria, these are PSP (Super Licence) (Cap 10), PSP (Standard Licence) (Cap 30) and PSP (Basic Licence)</b>
Respondent 4	<b>There 3 fintech license in Nigeria: PSP (Super Licence) (Cap 10), PSP (Standard Licence) (Cap 30) and PSP (Basic Licence)</b>

- Since we have different categories of Payment Service Provider (PSP), what category is your Licence?

Respondent 1	<b>PSP (Super Licence)</b>
Respondent 2	<b>PSP (Standard Licence)</b>
Respondent 3	<b>PSP (Standard Licence)</b>
Respondent 4	<b>PSP (Basic Licence)</b>

- What is the type of Licence you have?

Respondent 1	Switching
Respondent 2	Payment Solutions Service Providers (PSSP)
Respondent 3	Non-bank Merchant Acquiring

Respondent 4	Payment Terminal Service Providers (PTSP)
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- What services do you give?

Respondent 1	We provide switching, processing, transaction clearing and settlement services.
Respondent 2	We provide payment processing gateways and portals, payment solution/application development, merchant service aggregation.
Respondent 3	We provide merchant acquiring and settlements services, settlement agents services.
Respondent 4	We provide POS terminal deployment and services, POS terminal ownership, PTAD, merchant/agent training and support.

- What do you have to say about the cost of the licence?

Respondent 1	It is very expensive – minimum shareholder fund (SHF) for super licence is ₦5 billion, licence fee is ₦2 million and renewal fee is ₦1 million
Respondent 2	The cost of FinTech licence is very high in Nigeria. Minimum shareholder fund (SHF) for standard licence is ₦3 billion, licence fee is ₦1 million and renewal fee is ₦500,000.
Respondent 3	The cost of FinTech licence is very high in Nigeria. Minimum shareholder fund (SHF) for standard licence is ₦3 billion, licence fee is ₦1 million and renewal fee is ₦500,000.
Respondent 4	It is very expensive – minimum shareholder fund (SHF) for basic licence is ₦100,000, licence fee is ₦100,000 and renewal fee is ₦50,000. The cost has been a major barrier to entry into



	the industry.
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- **How is FinTech influencing the landscape of the financial services industry, and how can traditional financial players embrace the rise of FinTech companies?**

Respondent 1	FinTech is responsible for all major disruptions in the banking sector today like GTBanks 737, FirstMobile, and ALAT by WEMA Bank, just to mention a few. Now you can access top-notch financial services without stepping into a bank. Traditional banks could embrace the trend of FinTech companies by aligning with them to develop special financial products and also deliver existing products easily to consumers.
Respondent 2	It provides easy access to obtaining loans with or without collateral; it provides personal saving platforms and influences the requirements of holding cash or transacting via a bank account. Traditional financial players can embrace FinTechs by investing in the sector. This will help both sectors to mutually provide tailored services that will meet the needs of the public.
Respondent 3	FinTech uses technology in a better way to make people access financial services conveniently in the modern age. It helps people who are unbanked but have the desire to buy or sell online to have access to quick and affordable banking operations just by using mobile phones.
Respondent 4	The Nigerian commercial market offers a wide range of FinTech products such as digital currencies, innovative payment gateways, mobile lending, insurance and wealth management. This is principally accessed through a FinTech company's online or mobile banking platforms.

- Do you consider FinTech as a serious competitor for the traditional banks in the future?

Respondent 1	FinTechs are serious competitors to traditional banks in that we render services that are similar to those of banks in a more convenient way. This has shifted attention from some of the services rendered by banks.
Respondent 2	Yes, but there is a common ground where both industries can coexist in any economy. I think with proper regulations and guidelines both sectors can coexist.
Respondent 3	FinTech is a serious competitor to the traditional banks because they disrupt traditional ways of conducting financial transactions. The ease and convenience they bring to your doorsteps is a serious challenge to banks.
Respondent 4	Yes, FinTech is a serious competitor to traditional banks. Banks have been known to be very stressful in terms of payments and withdrawal of cash. These odds have been surmounted by the emergence of FinTechs.

- In what areas do you see the greatest potential impact of FinTech's disruption of traditional financial services, lending, currencies and investing?

Respondent 1	FinTech has disrupted and reshaped payments, commerce, investment, asset management, clearance, insurance, settlement of securities, etc. However, the greatest potential impact will be on currencies since it has affected the means of payment.
Respondent 2	The major impact FinTech has on traditional banking system is the aspect of affecting money itself with cryptocurrencies like Bitcoin. In fact, with the emergence of FinTech, paper money is not needed to carry out exchange or transactions.
Respondent 3	FinTech digitizes processes that were previously handled with

	paper money and human interactions. Its greatest potential impact is therefore on currencies.
Respondent 4	The areas greatly affected by FinTech are aspects of banking, payments, lending and financial management, with the greatest potential impact on currencies or means of payment.

- Some people think FinTech is a serious threat to traditional banks and should be discouraged since it disrupts traditional financial system. What are the benefits of FinTech, if any, to the Nigerian economy?

Respondent 1	I think the major benefits of FinTech to the Nigerian economy are access and convenience. It creates and enhances access to a range of financial services which were hitherto difficult to access in the shore of this country. Also, regulation technology or AI chat bots can streamline backoffice functions and strengthen business models for institutions as well as facilitate and automate decision making process.
Respondent 2	FinTech diversifies and decentralizes the Nigerian financial sector. The innovations in financial services have made easier to access funds. There are reduced barriers to lending, data processing and automation of loans. Distributed ledger technology like blockchain has also reduced concentration in settlement process.
Respondent 3	FinTech has alot of benefits to the Nigerian economy. It has eased the access to funds and payment processes. It also creates transparency in the financial system. Increased use of data has the potential to reduce asymmetries in information.
Respondent 4	A great benefit from FinTech is the area of quick and safe access to financial services. It generates more reliable data. Better data is now paving the way for smart contracts that are more accurately target specific risks users wish to manage.

- What segment of the Nigerian market do you feel FinTech is seeing the greatest adoption growth?

Respondent 1	FinTech has led to the growth of small and medium-scale enterprises (SMEs). This is because SMEs have become significant users of FinTech in Nigeria. This segment of the Nigerian market has the greatest adoption growth.
Respondent 2	The most used services are in money transfer and payments. About 75% percent of consumers in the market have used a service in this category.
Respondent 3	The segments of the Nigerian market in which FinTech is seeing the greatest adoption growth are banking and payment, FinTech is yet to contribute significantly in segments like financial management and insurance.
Respondent 4	FinTechs are powering and driving adoption of centralizing platforms and marketplaces through technology by enhancing growth in commodity market. This is achieved through easing payments and transfers.

- About CBN fees & regulations, do you feel that that's going to have an impact here in the Nigerian market? Is it going to help companies like you in the FinTech world?

Respondent 1	The CBN fees and regulations have adverse impact in the Nigerian market. To have a minimum shareholder fund ranging from \$275,000 to \$14 million before obtaining licences for their operations will discourage FinTech start-ups looking to offer digital services.
Respondent 2	The new regulations, though will affect start-ups, will help to address the emerging issues in the industry such as risk management and capital adequacy. These regulations and fees

	will serve as entry barrier that will protect existing companies in the firm. A co-founder of a startup FinTech company, who is a friend of mine and I don't want to mention his name, said some of the company's partners are cutting ties given the uncertainty
Respondent 3	Most Nigerian start-ups that manage to meet up with the CBN requirements, will find it difficult to meet up with operating costs and expenses which are usually very high.
Respondent 4	The new regulation requirements by the CBN would make it very difficult for some FinTech companies to operate in Nigeria. Most FinTech companies in the country are young offering services to traditional players in the ecosystem.

- The Nigerian government and CBN have given strong warnings about cryptocurrencies. What is your take on cryptocurrencies operation and CBN's stand in Nigeria?

Respondent 1	Cryptocurrency investments are unprotected and investors face a lot of risks such as exchange bankruptcy and market volatility. I think it should be regulated by the apex bank to protect investments, since a lot of money can be generated from it.
Respondent 2	I think the CBN and the Nigerian government have the responsibility to protect and guide Nigerians. It is the lack of adequate protection that led to the loss of a combined \$50 million in 2017 by about 2 million Nigerians to a bitcoin-related Ponzi scheme. Companies that are into cryptocurrency should obtain licence from the CBN.
Respondent 3	In a release by the CBN, dealers in cryptocurrencies, such as a Nigeria-based bitcoin and NairaEx, are not licensed by the CBN. The growing interest in Cryptocurrency investments is therefore

	highly risky and should be lawfully prohibited.
Respondent 4	The CBN has advised domestic banks to distance themselves from Cryptocurrency activities, but the high level of poverty coupled with the high level of population have made some Nigerians to put their faith in a form of currency which though unregulated, guarantees absolute freedom. Cryptocurrency investments should be regulated to secure cryptocurrency investments in Nigeria.

- What can we do in terms of regulation? Is it good to keep the barriers down low or is it something we're going to focus on in terms of the FinTech industry?

Respondent 1	I do think the government needs to lower the bar to accommodate more start-ups FinTech companies. The market can still accommodate more FinTech companies. This will create more jobs for the unemployed persons in the country, though the number of persons a FinTech company can employ is not large compared to the traditional banks.
Respondent 2	To encourage more competition and efficiency, the costs should be reduced and other barriers should be kept down.
Respondent 3	Some stakeholders in the industry are clamouring for a reduction in the licence costs but I honestly don't think it is a good idea. To control entry into the industry and have a manageable size of investors, the current charges are necessary.
Respondent 4	The cost of licence and servicing is still too high. The founders/CEOs of these companies still have operating and administrative costs. The recent regulations of the CBN are okay but the cost should be reduced to cut down the barriers.

- How do you handle KYC and how comfortable are you with the level of compliance with users?

Respondent 1	KYC is about knowing identifying and verifying your customers and their background. Though very expensive, KYC has helped to reduced fraud. We verify the following: bank account, driver’s license, BVN authentication, ID card, and facial capture and our customers have been responding very well to these KYC solutions.
Respondent 2	The dual threats of financial fraud and identity theft have made FinTech companies to comply with numerous regulations on KYC. Measures such as face capturing, Email verification, bank account, driver’s license, etc have been put in place for this purpose. For the level of user’s compliance, it has been encouraging.
Respondent 3	We have developed various potential solutions that address security issues around KYC. These include biometric identity verification, seamless automated KYC authentication, online boarding solution, etc.
Respondent 4	Know Your Customers (KYC) helps to reduce fraudulent practices, particularly the threats of identity theft and financial fraud in the financial industry. So far, customers have been very compliant in giving all necessary information.

- Infrastructure remains a challenge and where it exists startups can sometimes find it difficult to access it. For example, the National Collateral Registry was launched in 2016 and it has been successful with over 16,236 financing statements for 20,684 movable assets, valued at N392 billion recorded on the registry. However, startups have not really benefited from it as they should. As Rahmon Ojukotola pointed out, “A closer look at the data shows the National Collateral Registry has not been as beneficial to FinTech start-

ups, with only one non-bank lender using the platform as at August 2017”. What do you think of the National Collateral Registry?

Respondent 1	The NCR will help to create confidence in the system and minimise incidence of fraud. Although only registered users, that are regulated by the CBN, can save data to the database. This is to ensure that these data are secured.
Respondent 2	The access to infrastructure is usually a major challenge in Nigeria and Africa as a whole. The idea of NCR is not bad but lack of infrastructure has always been a problem. For instance, how do start-ups access such database when power supply is erratic?
Respondent 3	The NCR is a good idea but there is need for more publicity. Some investors are not aware of its existence and those that even do, do not know how it works. This is one of the challenges FinTech start-ups want to be looked into by the apex bank.
Respondent 4	As Rahmon Ojukotola rightly pointed out, the NCR has not been as beneficial to FinTech start-ups. I think it is because they need to be educated on how it works. There is also the problem of distrust for the system as to whether data are actually safe.

- Is this still an issue that has not been tackled?

Respondent 1	Of course, the government is yet to tackle the problem of inadequate infrastructure and as long as this problem lingers it will be difficult or almost impossible for the National Collateral Registry to be beneficial to FinTech companies in the country.
Respondent 2	Yes, the issue has not been tackled. Most startups have not really benefited from it as they should. New FinTech companies still find it difficult to use the platform.



Respondent 3	Infrastructure still remains a challenge to the optimal utilization of the National Collateral Registry. Consequently, FinTech start-ups in particular have not been able to benefit from this database.
Respondent 4	It has not been tackled. Like I said earlier, financial institutions need to be educated on how the NCR works and its essence. I don't think the CBN has done that.

- Talking about financial inclusion, lending is one of the strategies that have yielded better results. Consequently, in a circular dated 30<sup>th</sup> September 2019, the Central Bank ordered all DMBs to increase their minimum loan-to-deposit ratio to 65% before December 30<sup>th</sup>. This is a strategy, which if put in place, will likely move customers away from FinTech to Banks, where they have enjoyed low interest rates also. Is this seen as a move by the regulatory body to cripple the advantage that FinTech has had over the banks?

Respondent 1	The order given by the CBN to all DMBs to increase their minimum loan-to-deposit ratio to 65% is not a direct move to harm FinTech companies but to enhance the impact of the financial sector on the real sector. However, this has an indirect impact on FinTech companies which is not good at all. Customers prefer loans with low interests.
Respondent 2	Yes of course, lending is one of the strategies that have yielded a good result in terms of financial inclusion and this new order is actually going to cripple the advantage of FinTech to some extent. For instance, these loans can be extended by banks over generous 10-year terms and banks can also offer features likes projection-based underwriting, in which loans are based on the projected future profits of the business venture. These are services that the FinTech lenders cannot offer.
Respondent 3	No, I don't actually think so. The CBN order to all DMBs is to

	consolidate the financial sector by increasing the minimum loan-to-deposit ratio. This will encourage more loans and investment in the long run. However, for all convenience touted by FinTech lenders, this loan aspect is one of the many examples where traditional banks have an edge over FinTech companies.
Respondent 4	This will definitely affect FinTech lending in Nigeria. If FinTech companies charge higher interest rates than traditional banks based on this new order, simply means banks will be able to offer loans at very reasonable interest rates than FinTech companies. It will definitely affect the level of FinTech's financial inclusion.

- The FinTech innovation cannot be separated from cybersecurity and privacy issues. Many FinTech companies collect and process a vast amount of data in order to provide financial services efficiently and inexpensively. Most of these data are highly sensitive information that can be misused if they fall into the wrong hands, thus, it behoves on FinTech companies to ensure compliance with data protection and cybersecurity laws. What measures have been put in place to forestall that?

Respondent 1	There are basically six measures put in place recently by the CBN to check cybercrimes and to ensure FinTech companies comply with these measures. These are Cybersecurity Risk Management Programme, Metrics, Cybersecurity Operational Resilience, Cybersecurity Governance and Oversight, Monitoring and Reporting, and Compliance with Statutory and Regulatory Requirements. These measures have given a minimum cybersecurity baseline for DMBs and PSPs in the country's financial ecosystem.
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Respondent 2	The CBN recently came out with a draft guideline on cybersecurity for Deposit Money Banks (DMBs) and Payment Service providers (PSPs). This has helped to reduce theft of personally identifiable information, cyber attacks, malware attack, and install trust in the system.
Respondent 3	There are good guidelines formulated by the CBN to regulate the sector so as to ensure Cybersecurity and reduce incidence of cybercrimes. It is the duty of the Board of Directors to ensure compliance with all these provisions – all statutes, regulations and guidelines.
Respondent 4	The CBN is empowered under the Banks and Other Financial Institutions Act (BOFIA) to issue guidelines to regulate the country’s financial sector. This includes regulating the activities of all financial service providers. This is a commendable response to cybercrimes plaguing the sector. All players in the financial sector must comply with these guidelines or face certain consequences.

- Fintech founders have an issue of trust. “Nigerians are sceptical when it comes to their money which explains why the banks are and will continue to rule for a while. Building consumer trust, therefore, is a major obstacle to scale,” Segun Adeyemi said. Further highlighting this problem, Timilehin Ajiboye mentioned that in his experience, “users are untrusting and always use products in different ways than one previously imagined”. These statements show a 2-way lack of trust btw FinTech and users. What do you say is the solution to such a growth barrier?

Respondent 1	There is the need to build consumer trust to promote growth in the industry. Segun Adeyemi’s statement is not far from the truth. The foremost action that the CBN has to take, like what was obtainable in India, is to reduce anxiety associated with digital payments by constantly improving the reliability of the transactions on the FinTech platforms. This will help to create
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	and consolidate consumer trust for the sector.
Respondent 2	I think a major barrier to the growth of FinTech is the existing regulations. They aren't conducive for the growth of FinTech Companies. While these regulations are imperative to protect companies and consumers, they tend to affect FinTech industry negatively to some extent due to difficulties in regulating areas such as cryptocurrency and these regulations promotes the distrust the public already has for the FinTech industry. The CBN should make regulations that will be friendly to FinTech in as much as it desires to protect the interests of DMBs. This will increase investment in FinTech, protect FinTech investment and enhance public trust for the sector.
Respondent 3	We have to ensure greater security. One major challenge against the growth of FinTech industry in the country is cybercrimes. People are scared of using the various FinTech platforms as a result of the fear that their data are not secured. Timilehin Ajiboye's observation that "users are untrusting and always use products in different ways than one previously imagined" could be minimised if there is greater security.
Respondent 4	One of the reasons Nigerians have lack of trust for FinTech companies is that they are very sceptical about their funds. They also want an opportunity to access larger loans with ease. FinTech companies can capitalize on this. They need to create a platform for larger amount of loans. This is one area where traditional banks have advantage over FinTech operators. This can create more trust for the sector.

- That was great. What do you feel is the biggest issues that FinTech will have here within Nigeria?

Respondent 1	Lack of trust is the biggest issue that FinTech will continue to face in the country. Despite the innovative products offered by various FinTech Platforms, most Nigerians are scared to transact online because of the lack of trust they have in divulging vital information about themselves online like their BVN number, ATM Card number, passwords, address, etc.
Respondent 2	Cybercrime and fraud. FinTech transactions are prone to cybercrime and financial fraud. Their systems are perpetually under attack. I think this is the biggest issue that FinTech companies will continue to face in Nigeria.
Respondent 3	Barriers to entry are one of the biggest issues that FinTech will have here within Nigeria. The cost of license is very high. There is always the problem of regulation rigidity. There is still a lack of clarity in the regulation environment and the regulators are not flexible and proactive in measuring with the fast paced nature of the FinTech industry.
Respondent 4	Lack of public trust and unclear regulations have always been the major challenges of the FinTech sector in Nigeria. Some Nigerians prefer the traditional banks despite the difficulty in doing some transactions because they think it is safer. There are also too many licenses required for an entrepreneur to participate in the FinTech industry. This has discouraged many potential investors.

- Lastly, what is way forward for FinTech companies operating in Nigeria?

Respondent 1	FinTech offer specific bank functions cheaper and faster than traditional banks. But while this has led them to quick success, no FinTech company is able to offer the breadth of services these traditional banks offer. Studies have shown that offering a wide
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	<p>spectrum of services makes customers “sticky”. I think FinTech companies should offer several services to consumers to retain their customers. This will also make the FinTech companies remain more relevant. Some e-commerce companies have introduced Pay-On-Delivery (POD) to encourage customers to transact online and pay when items are delivered. Facilities like this will encourage people to patronise FinTech companies.</p>
Respondent 2	<p>There are already moves to consolidate the sector. The CBN has mandated all FinTech companies to put security mechanisms in place to protect their systems against fraud. This will create trust and confidence in the sector. The sector also needs funding. Adequate funding will help FinTech companies in several levels. I think FinTech companies need more investment, terminals and infrastructure. We also need to enable offline retail with equal amount of ease and convenience as the online retail.</p>
Respondent 3	<p>A lot of traditional banks believe that they will have to rebuild their brand to accommodate FinTech Platform for them to remain competitive in the financial industry. FinTech companies can similarly enlarge their spectrum of services to remain more competitive. The CBN should lower the cost bar. Like I said earlier, barriers to entry are one of the biggest challenge that FinTech sector has in Nigeria. The cost of obtaining any of the license should be reduced to encourage more investors in the industry.</p>
Respondent 4	<p>The best way to beat them is to emulate them. FinTech companies should create more products that are traditionally provided by banks which they should provide with ease. There should be concerted effort to enlighten the public on the various platforms of FinTech companies. To survive the Nigerian economy, facilities should be provided in rural areas to enable</p>

	those in these regions access FinTech solutions or services. There are still villages without network facilities. As a result, it becomes really difficult to access the internet and FinTech services.
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Thank you, sir, for your time and cooperation. God bless you sir.

### Semi Structured (9 Respondents).

Respondent  $\eta$ : CEO, Academia (FinTech user).

Respondent  $\theta$ : CEO, Broadband Infrastructure (FinTech user).

Respondent  $\iota$ : CEO, Digital Banking (Incumbents).

Respondent  $\kappa$ : Manager, Financial development consultants (Research, Innovation, Advocacy and Capacity).

Respondent  $\lambda$ : CEO, Payments (Incumbents).

Respondent  $\mu$ : CEO, Payments (Incumbents).

Respondent  $\nu$ : CEO, Payments (Incumbents).

Respondent  $\xi$ : CEO, Payments (Incumbents).

Respondent  $\omicron$ : CEO, Payments (Incumbents).

#### Question 1:

- Sir, as we know, many startups do not survive beyond their first one to five years. What do you feel is the biggest issues that FinTech has in Nigeria?

Respondent 1	I think the biggest issue faced by FinTechs in the country is the lack of trust for their services. Most people are scared when it comes to online transactions.
Respondent 2	Most start-ups do not survive the first three years due to lack of popularity among consumers and target market. Majority of the people are illiterate and unaware of the benefits of these services.
Respondent 3	There is lack of trust for FinTech activities among Nigerians. They are scared of divulging vital information about themselves online through the use of ATM Card.
Respondent 4	The cost of running a FinTech in the country is too high. The



	<p>cost of licenses and operation has been the reason some FinTechs do not exist for long. There is also the challenge of lack of trust on the part of the public.</p>
Respondent 5	<p>In the world, Nigeria is one of the few countries with large market for all sorts of products to thrive. However, cybercrime and fraud have made FinTech transactions very doubtful. These cybercrime and financial fraud have made most Nigeria sceptical and when the continuous patronage is not there, these firms run into deficit in no time.</p>
Respondent 6	<p>Barriers to entry are one of the biggest issues that FinTech will have here within Nigeria. The cost of license is very high. There is always the problem of regulation rigidity. There is still a lack of clarity in the regulation environment and the regulators are not flexible and proactive in measuring with the fast paced nature of the FinTech industry.</p>
Respondent 7	<p>Nigerians are yet to fully embrace FinTech services. Most people in the informal sector are not aware of these servives. Lack of public trust and unclear regulations have always been the major challenges of the FinTech sector in Nigeria. You will observe that many people still prefer the traditional banks despite the difficulty in doing some transactions. They want something safer. Also, there are also too many licenses required for an entrepreneur to participate in the FinTech industry. This has discouraged many interested investors, both foreign and local.</p>
Respondent 8	<p>The regulations may be too stiff. There are alot of licenses to obtain to operate in Nigeria as a FinTech company. This is not easy for the start-ups. Some of these licenses have to be renewed annually, making it difficult for many start-ups to</p>

	survive if they can't cover their costs of operation.
Respondent 9	The reason is simple. Many startups do not survive beyond their first one to five years because they lack the financial base. Also, their systems are perpetually under cyber attack, because they are not secured. Some of these entrepreneurs lack a sound knowledge on how to manage the challenges of FinTech.

**Question 2:**

- Transfers and payment seem to be the areas most affected by FinTech activities. Yet they are being impeded by transfer charges and PoS transaction charges respectively. Lately, Opay and Carbon introduced transaction fees which expectedly, did not go down well with customers. Transaction failure rates have also forced merchants to opt for cash payments. Is there a way around these issues?

Respondent 1	Transaction charges and failure have discouraged most customers from patronizing FinTech companies. I believe those in authorities can do something about it to help start-ups FinTechs.
Respondent 2	Nigeria is made up of alot of low-income earners. If they must patronize these firms then transfer charges and PoS transaction charges must be removed. The CBN and other regulatory bodies should visit this issue.
Respondent 3	The FinTechs are doing great. I think Nigerians are gradually appreciating what we do. You can access top-notch financial services without stepping into the bank. You can actually make payments and transfer with ease. Transaction costs will be reduced or removed depending on the CBN regulations. The cost of running a FinTech firm is too high. A reduction in these costs by the regulatory body will help to reduce or remove

	transaction costs.
Respondent 4	<p>FinTechs have come to stay. We must brace up with the outside world. FinTechs provide easy access to financial services. In addition, we make it easy to obtain loans with or without collateral and provide several saving platforms. I think charging some token as transaction charges is not too much. Transaction failure rates are high but this is mostly due to the poor network services in the country.</p>
Respondent 5	<p>FinTech uses technology that is very expensive to manage their operations and to make people access financial services conveniently. People can actually buy or sell online just by using mobile phones. These companies require money for maintenance cost and to cover the recent tax that they are meant to pay. Actually, these extra charges tend to affect the public who are the final consumers. These charges can be eliminated if the regulatory bodies reduce some of the charges FinTech companies incur in the process of discharging their services.</p>
Respondent 6	<p>FinTech companies offer a wide range of FinTech products such as digital currencies, innovative payment gateways, mobile lending, etc. The payment of POS charges, transfer charges, etc helps these firms to cover costs and provide These products are mainly accessed online or through mobile banking platforms. Consequently, transaction failure can be minimized if there are better network services.</p>
Respondent 7	<p>There is no doubt that transfers and payments are the services of FinTech most affected by extra charges, despite other products FinTech offer such as mobile banking, digital currencies, innovative payment gateways. These charges do not</p>

	<p>go down well with the public. I think these charges are to enable FinTechs stay afloat. The government should give some concessions to these companies to enable them remove these charges.</p>
Respondent 8	<p>Transaction failure is a major problem in Nigeria. It is frustrating when online transactions fail. It discourages customers. There is the need for better network facilities and services, as this directly affects FinTech services. Charges for payments and transfers are obtainable everywhere in the world. In some cases, these charges are low. The regulatory bodies in Nigeria can review these charges and try as much as possible to reduce it.</p>
Respondent 9	<p>Obviously, transfers and payment are the areas most affected by FinTech activities, because they major in these areas. Consequently, transfer charges and POS transaction charges have obstructed or slow down the activities of FinTech. These charges do not go down well with the general public. The CBN is seriously working on the issue of transaction failure. Like you know, it has forced merchants to opt for cash payments and it is against the CBN cashless policy. It is working with the NCC and other regulatory to ensure improved network services and reduced transaction charges as this will be beneficial to FinTechs. Though one reason for the increase in transaction charges is the inclusion of FinTech companies as taxable companies.</p>

**Question 3:**

- Customers interviewed have complained of a high level of rejection in terms of loan, and some have been offered ridiculously low amount. What is the reason for that?

Respondent 1	I have not obtained financial assistance online. The last time I tried it, I was discouraged because of the various stages one has to pass through and poor responses or feedback one gets. It is obvious these FinTech companies do not have sufficient funds to give out loans to the public or they are too scared to take the risk. I am also not okay with the vital information they require from you in the process.
Respondent 2	It is almost impossible to obtain loans from FinTechs online. They will tell you loan can be obtained within some minutes, but in reality it is a very tiring process with alot of forms to fill online. I don't think these online firms have sufficient funds to give reasonable loans to customers. I have never been given a loan above ₦50,000. It is frustrating.
Respondent 3	We haven't had any such case where customers complained of rejection in terms of loan at all. There are processes and online forms to fill. Once certain conditions are met, the loan is given. It is that simple, just as you have it in traditional banks. We even save you the consumers the stress of going to the bank.
Respondent 4	Yes, there are times we are forced to reject some applications for loans, especially when we suspect foul play or sense some insincerity due to some irregularities. We just have to be careful. I don't understand what you mean by ridiculously low amount. We assess your application and give what is suitable based on your expected returns or income base.
Respondent 5	I can't really defend that. Most people normally source for funds from traditional banks. But if there is anything to say to that, I think it is possible that these companies do not have

	sufficient fund base to give out large loans.
Respondent 6	There are few FinTechs that have the financial capabilities to give large loans. So it will not be surprising if some applications for huge loans are declined.
Respondent 7	I have not heard of that. Although it is possible that these companies are trying to be prudent before giving out loans. Sometimes people give false information online and it becomes difficult or almost impossible to retrieve loans once given out.
Respondent 8	FinTechs are new entrants in the Nigerian financial landscape. With time and more patronage, the FinTech companies will do very well and be able to give out more loans. I think with time and appropriate policies in place, these companies will be able to give out reasonable loans to the public.
Respondent 9	I am aware of the fact that most of these FinTechs do not have the financial capacity to give out large loans. There are a lot of reasons why a FinTech company may reject applications for loans, ranging from availability of funds, amount applied for, income base of applicants, feasibility of business proposal, and so on.

**Question 4:**

- Lack of trust is the biggest issue that FinTech will continue to face in the country. One of the reasons Nigerians have lack of trust for FinTech companies is that they are very sceptical about their funds. There is a problem of distrust for the system as to whether data are actually safe. They also want an opportunity to access larger loans with ease. Opinions of other FinTech players on how to increase trust between FinTech and users is to reduce anxiety associated with digital payments by constantly improving the reliability of the transactions on the FinTech platforms. What is your thought on that?

Respondent 1	Of course, like you rightly said, distrust will be reduced by constantly improving the reliability of the transactions on the FinTech platforms. Over 80% of the financial crimes in Nigeria are, in one way or the other, related to online transactions. The CBN should also try and assist these financial players to enable them give out large loans to the public.
Respondent 2	I support the idea of enhancing trust between FinTech companies and users. It will actually reduce the fear and anxiety associated with digital payments. Online transactions need to be more reliable and safe. However, I think there should a limit to the amount of loans FinTech companies should give.
Respondent 3	You have said it all. Our major challenge as FinTechs is lack of public trust. Our systems are secured but alot of persons are yet to understand this fact. The public need to be more educated on how online transactions work. This will help develop trust on the sector. Giving out large loans is not our major problem, some persons don't even know that we can give out loans. The public need to be more sensitized on how FinTechs work and the benefits.
Respondent 4	FinTech players are actually doing everything possible to increase trust between FinTechs and our customers. We know that if we can reduce public anxiety associated with digital transactions by making our services on the FinTech platforms more reliable, we will reduce this problem to a large extent. Believe me, FinTechs are aware of this problem and are working on it.
Respondent 5	While improving the reliability of the transactions on the FinTech platforms will build more trust on digital payments, it

	<p>should be noted that there is no way transactions on FinTech platforms can be as secured as those of traditional banks or give large loans like traditional banks.</p>
Respondent 6	<p>Lack of trust is the biggest issue that FinTech will continue to face in the country. One of the reasons Nigerians have lack of trust for FinTech companies is that they are very sceptical about their funds. However, improving the reliability of the transactions on the FinTech platforms will actually help to enhance customers' trust.</p>
Respondent 7	<p>There is problem of distrust for the system as to whether data are actually safe. People are scared to divulge information about vital particulars, like BVN number. There is the need to actually improve on security and trust. On the issue of larger loans, I think these companies should be careful and see how their loans can be retrieved successfully.</p>
Respondent 8	<p>An improvement in the reliability level of the transactions on the FinTech platforms will boost customers' trust. The good part of it is that with maximum security, FinTechs will be sure to larger loans with ease.</p>
Respondent 9	<p>The modes of operations of these digital firms have been under serious review. The CBN has the responsibility to ensure adequate security of all financial transactions within the Nigerian landscape. One of the reasons for this constant review is to improve the reliability of the transactions on the FinTech platforms. We are also putting measures in place to enable them give out large loans that are secured.</p>

**Question 5:**



- Is lack of a wide spectrum of services a barrier for FinTech companies to remain more competitive? What is happening to areas such as financial management? Do they have a bright future in Nigeria?

Respondent 1	FinTechs do not have a wide spectrum of services. In most cases, the services are limited to transfers and payments. This affects their competitiveness. They should go into areas such as advancing of loans, estate management, financial management, etc., these services will make them more competitive and have a bright future in Nigeria.
Respondent 2	The lack of a wide spectrum of services is actually a barrier for FinTech companies to be competitive. To be more competitive in the financial market, a firm must be able to render a lot of services to satisfy its customers, such as financial management, collection and payment of credit facilities. The world has become digital, so FinTechs have bright future in Nigeria.
Respondent 3	The inability to provide other services apart from transfers and payments has limited the growth of FinTech companies in Nigeria. For FinTech to stand the test of time, services provided by traditional banks like asset and financial management can also be incorporated into the services of these companies.
Respondent 4	A major barrier to the competitiveness of FinTech companies is the lack of financial products offered to the public. There are a wide range of products needed by the public. The competition from traditional banks going into online services is telling on FinTechs. To survive this competition and become more competitive, FinTechs must break every obstacle on their way and improve upon the number of products offered to their customers.

Respondent 5	The lack of a wide spectrum of services is not a barrier for FinTech companies to remain more competitive in the industry. They need to focus on maximizing the security of data and efficient delivery of already existing services.
Respondent 6	The lack of a wide spectrum of services may be a barrier for FinTech companies to remain competitive in the financial market. Also, there is a promising future in other areas, but these companies need to be careful. We also need to have adequate regulations that are well spelt out to enable them thrive in these areas.
Respondent 7	Ordinarily, the wider the scope of the market you can reach and cover successfully, the better for you as a producer. A firm tends to be more competitive, if it can render more services. FinTech companies should be looking into this, they should try and provide more technical and financial services to the public.
Respondent 8	Having a wide spectrum of services would help FinTech companies to be more competitive. The financial sector is highly competitive. If a company is not proactive and inventive, it may fizzle out with time. FinTechs can start looking into insurance, asset management, larger loans provision and financial management.
Respondent 9	FinTechs, as digital companies, can venture into other areas. They are not limited in terms of services provided, but creating the market for such new products is another challenge. Of course, with an adequate online system and mechanism, these companies can render services such as financial management in the nearest future in Nigeria.

## CRYPTOCURRENCY

### Question 6:

- Nigerians usage of bitcoin has continued to rise despite warnings by the Central Bank of Nigeria that digital currencies are not legal tender. The Chartered Institute of Bankers of Nigeria disclosed this in its release on ‘The Nigerian Banker’, in its December 2019 edition. Although there are no existing crypto regulations in Nigeria, the country’s Security and Exchange Commission (SEC) announced in September 2019 that it organized a committee called the **Fintech roadmap committee and Blockchain/ Virtual Financial Assets Working group which** will develop a framework to support innovation and regulation within the Blockchain and Virtual financial assets' space taking into cognisance effective investor protection, financial market integrity, and financial stability. Is this presently being considered?

Respondent 1	The SEC has developed a framework to support innovation and regulation within the Blockchain and Virtual financial assets' space. This giant stride, no doubt, will ensure maximum investor protection, financial market integrity and stability if it is pursued regorously.
Respondent 2	Yes, the framework developed by the SEC is being considered in the digital sector in the country currently. This framework is designed to support innovation and regulation within the Blockchain and Virtual financial assets' space and it will achieve that with time.
Respondent 3	This developed framework by the SEC, though intended to consolidate the FinTech sector by supporting innovation and regulation within the Blockchain and Virtual financial assets' space, it has not yet guaranteed financial stability and integrity and effective investor protection. There is the need for full implementation of all policy recommendations to achieve the goal of SEC.

Respondent 4	The SEC's framework is presently being considered in the Nigerian financial space. It will help to enhance trust in the digital sector. No doubt, in the long run, it will lead to effective investor protection, financial market stability and financial integrity.
Respondent 5	The SEC was ordered to serve as a think tank which will provide guidance on independent research for examining the role and value of FinTech in the financial ecosystem and seek efficient and responsible policy regulatory regimes that balance financial innovation and consumer protection. This it has done.
Respondent 6	In light of the rapid adoption of technology in the financial services sector, the Securities and Exchange Commission was forced to spearhead the development of a regulatory framework for the operation of FinTechs in Nigeria with the inauguration of a FinTech Roadmap Committee. This policy framework is presently implemented in Nigeria.
Respondent 7	Although there are no existing crypto regulations in Nigeria, like you said, the SEC has tried to develop a comprehensive framework to cover activities in this area. The Committee is also commissioned to promote access to capital in the Financial Services sector. The SEC framework is presently being implemented. This will enhance financial inclusion in our economy and protect invest in the FinTech sector.
Respondent 8	One of the duties of the SEC committee is to foster greater transparency within the Financial Services sector. The framework developed by the SEC is to achieve this. It is presently being implemented and will hopefully enable more efficient compliance in regulator regime. This framework becomes necessary due to the fact the Nigerians usage of bitcoin has continued to rise, creating the need to monitor

	and regulate the activities in the FinTech industry.
Respondent 9	Despite the numerous warnings by the Central Bank of Nigeria in its various publications that digital currencies are not legal tender, the usage of bitcoin by Nigerians has continued to rise. This led to the setting up of a committee to set things right. The terms of reference of this committee were to develop a FinTech roadmap for the Nigerian Capital Market and to inform the SEC on approaches to innovation within the Financial Services sector. This has made the SEC to develop a framework that will ensure effective investor protection, financial market integrity and financial stability, which has since been implemented.

**Question 7:**

- Today’s cryptocurrency world is getting bigger, wider and weirder; it is almost becoming confusing for ordinary users to navigate. There are about 2168 cryptocurrencies listed on the Coinmarketcap exchange, including familiar names like Bitcoin, Ethereum, Litecoin as well as unfamiliar and sometimes weird ones like Lambda, Elastos, Fetch, and PLATINCOIN among many others. And I guess they function differently; do you have any knowledge of how it works and how it can accelerate the financial inclusion?

Respondent 1	Yes, there are alot of cryptocurrencies. The list is endless. More are still being introduced. One technology that has propelled this is blockchain. This is an innovative technology that allows transfers of assets over the internet and has the potential to make the world a more transparent, efficient, and frictionless place. It has the ability to address some of the obstacles to providing affordable and usable financial access, such as account opening, account usability, and costs incurred to a financial institution. It
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	has accelerated the process of financial inclusion.
Respondent 2	The introduction of cryptocurrencies in the Nigerian economy has encouraged a lot of people to patronize financial services. One technology that has done this is blockchain. It plays a significant role in accelerating financial inclusion and empowering and transforming the lives of billions. Using blockchain can lower costs, reduce risk, and enhance financial innovation. Blockchain technology allows financial innovators to provide specific solutions to the regional problems faced by the unbanked, allowing them to develop tailored solutions to a massive and complex global problem.
Respondent 3	In a release by the CBN some years ago, dealers in cryptocurrencies, such as a Nigeria-based bitcoin and NairaEx, were not licensed by the CBN. The growing interest in cryptocurrency investments has, however, made the CBN and other regulatory bodies to try and regulate the sector. This has helped to enhance financial inclusion. Blockchain, for instance, can transfer value in a near instantaneous manner. (Transfer takes about 10 minutes, which is slow compared to the payment systems of developed economies but faster than those of developing economies.) Transfer fees are applied as a percentage of the transfer's value rather than a fixed rate, and the transfer requires no minimum payment amounts. Low rates, no minimums, and fast value transfers make blockchain useful for unbanked people to complete payment transactions.
Respondent 4	Initially, the CBN advised domestic banks to distance themselves from Cryptocurrency activities, but the high level of poverty coupled with the high level of population have made some Nigerians to put their trust in this system and ever since the use of cryptocurrencies has been on the rise. This technology has

	<p>promoted financial inclusion of the non-bank public by helping to make payment, transfers, open accounts, etc.</p>
Respondent 5	<p><b>Whenever we talk about cryptocurrencies and financial inclusion blockchain</b> comes to mind. This technology is amazing. It enhances financial inclusion by helping to overcome the problem of usability of an account. The challenge is not just in opening the account but in the everyday usability. Current obstacles for bank accounts are high transactional costs for making payments, minimum payment sizes, and settlement times. Making payments via the national payment system often takes a number of days, and there are fees involved. The recipient of a payment is not likely to release the services/goods until they are satisfied that they have received the funds.</p>
Respondent 6	<p>Cryptocurrencies have promoted financial inclusion by making easy to carry out banking activities. Realizing the importance of blockchain and virtual currencies, most governments and regulators are proactive in searching for a way to regulate and facilitate the growth of the industry. However, because of the complex nature of the technology and risks associated with it, each regulator has different opinions and approaches for the issues identified as risks.</p>
Respondent 7	<p>There are alot of cryptocurrencies in the country. Though risky, it has made the delivery of financial services easier through the provision of digitally-based financial services. The use of blockchain has increased financial inclusion in the Nigerian economy by addressing the issue of high fees payment. It also eases payments, opening of account and develops trust in the FinTech sector.</p>

Respondent 8	<p>Cryptocurrency helps to overcome a number of obstacles to providing financial access to the unbanked population. This is where it has accelerated the rate of financial inclusion. It has also increased the usage of financial services by the underbanked sector. This is possible due to the use of blockchain, which helps in opening an account. It is costly and challenging for those without a bank account to open one. There are travel and opportunity costs in going to a bank branch. Individuals also need to provide identification documents and an initial deposit. Individuals do not need to travel to a financial institution to open an account or deposit cash. They are able to open an account on their phone thus avoiding the travel costs to set the account up. They are also able to deposit money into the account through a number of third party agents. This makes it easier to get money into the system and promote financial inclusion.</p>
Respondent 9	<p>Bitcoin, Litecoin and Ethereum, are just some of the popular cryptocurrencies we have presently. No doubt, there are a lot of them. The presence of these cryptocurrencies has enhanced financial inclusion in the country. Financial inclusion has to do with the delivery of affordable and usable financial access for unbanked and underbanked people. The Central Bank of Nigeria and the Nigerian Inter-Bank Settlement System announced in 2018, that they would be collaborating to create a CBN x NIBSS regulatory sandbox for the facilitation of digital innovation and FinTech solutions. They therefore created the Financial Service Innovators Association of Nigeria (FSI) to co-ordinate the project and are expected to launch by the end of the year. This has enhanced financial inclusion and trust on cryptocurrencies, which have made banking activities easier. The opening and usage of accounts have become easier. Despite these incentives to employ blockchain, the widespread adoption of this technology has been</p>



	slow due to the perceived associated risks.
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**Question 8:**

SEC has the mandate to enhance FinTech Investment and to ensure data security, since this will boost public confidence on the sector. In order to improve the penetration of investment products and create public trust, what has the Commission done?

Respondent 1	SEC has increased international participation in the sector and also provided potential and existing investors with numerous choices in the capital market. This has boosted the level of investment in the sector.
Respondent 2	The SEC is working with the OECD Guidelines to secure and encourage investment in the FinTech industry, it has also worked on the Protection of Privacy and Transborder Flows of Personal Data to ensure that data are secured. This will create public trust and increase the level of investment in the FinTech sector.
Respondent 3	In order to improve the penetration of investment products and create public trust in the FinTech sector, the SEC has encouraged the use of new technologies and well secured digital finance in the capital market. This will not only ensure security of data, it will equally attract more investment in the sector.
Respondent 4	The SEC is seriously working with the Financial Conduct Authority (FCA) and Department for International Development (DFID) to develop the FinTech space in Nigeria. It is also working with the UK's Financial Conduct Authority (FCA) to consolidate the FinTech sector in Nigeria. In fact, FCA has dedicated about £2m to support FinTech start-ups in the country.
Respondent 5	SEC has the mandate to collaborate with regulators and government agencies to develop FinTech oriented privacy and security policies. The SEC has reviewed some Global privacy regulations, such as the EU General Data Protection Regulation and the Convention No. 108. These

	have been adapted to Nigerian startups. It has also enforced competition rules to prevent formation of data provider monopolies.
Respondent 6	Low level of public awareness is a serious problem in Nigeria. SEC is working worked with the OECD Guidelines with educational institutions to develop industry relevant curriculum, create cross-country financial literacy programs and hold seminars and conferences on financial literacy in capital market.
Respondent 7	SEC is working with the CBN to ensure trust in the FinTech sector. It has recommended that the government should collaborate with universities and other tertiary institutions to deepen training and research in software skills and engineering, provide grants for training prospective software developers to high globally recognised standards and implement fiscal policies to provide tax breaks for institutions and individuals investing in startups and FinTechs.
Respondent 8	SEC has decided to collaborate with the National Pension Commission to ease tension between fund and pension managers, share knowledge with the Commission to effectively allocate available assets and revise regulations, such as the SEC Rules. It has also decided to collaborate with the National Insurance Commission (NAICOM) to promote the adoption of FinTech as distribution channels for the promotion and sales of insurance products and educate consumers on how insurance works.
Respondent 9	SEC is collaborating with the CBN to streamline customer onboarding and simplify the process of new product registration to encourage product investment. It is also working with Self-Regulatory Operators to provide access to information for FinTech oriented companies and startups. The SEC has adopted regulatory and supervisory practices that are meant for the development and stability of the FinTech industry. The SEC is doing alot. It is presently sapping from the benefits of the UK-Africa FinTech partnership to connect domestic with British FinTech investors. It is working also in line with the OECD Guidelines.

**Question 9:**

In your own opinion, what other things can this body do to **foster an innovative environment and develop the FinTech Sector?**

Respondent 1	To foster an innovative environment and develop the FinTech sector, SEC should attend to the regulatory challenges that FinTechs encounter. The Commission should also work with other government agencies to provide incentives to startups. This will encourage start-ups to embark upon researches and develop new products. There can be zero tax for new products for a period of 3 – 5 years, depending on the vitality of the new products.
Respondent 2	SEC should encourage competition in the digital sector. It encourages innovative ideas and technology. It can collaborate with Nollywood or leverage YouTube and Facebook to develop and disseminate short videos on financial literacy, to educate the public on the need for FinTech services. This is necessary because with a larger market, FinTech firms will be instigated to be more innovative. The SEC needs to encourage the development of innovative capital market products and processes that promote competition and efficiencies in financial services.
Respondent 3	Regulators should be up-to-date on recommendations and guidance set forth by the global standard-setting bodies on new developments like virtual assets to enable them push FinTechs to be more innovative. SEC should create a sandbox and collection of Application Programming Interface (API) services that can be made available to FinTech firms to create innovative solutions. SEC may develop innovations that support financial inclusion and promote market development through the building of the capacity of the market participants.

Respondent 4	<p>FinTechs should be made to connect with knowledgeable partners for knowledge sharing and innovative development. SEC should invest in RegTech platforms. This will strengthen inspection and investigation processes and ensure transparent enforcement and prosecution of digitized rules/codes. There may also be the need to introduce regulatory sandbox for some products so as to understand how they work in case the existing rules cannot be easily modified to register them.</p>
Respondent 5	<p>There should be incentives to enable FinTechs to be innovative and developed improved technology. Also, the adoption of improved technology will be needed for the current and planned operations of SEC. This is necessary to maintain SEC’s status as the apex regulator of the Nigerian capital market and keep up with the global development in capital market regulation. Huge investment will definitely be required in the training of staff and deployment of necessary tools and technology to understand and regulate evolving products and processes.</p>
Respondent 6	<p>The government should strive to promote an innovative organizational mindset to stimulate how the management of these FinTech firms think positively towards developing new innovative products. The development of local technology should not be undermined. Firms should nurture in-house talents to produce cost effective products. SEC to drive a harmonized regulatory agenda by creating a centralised committee of all regulators (charged with the responsibility of formulating and ratifying policies and regulations for FinTechs) and allow different FinTech businesses to be regulated by different bodies within the committee. For new products, there will be the need for the establishment of innovation hub where businesses can display their innovative ideas and products in capital market.</p>
Respondent 7	<p>Companies in the FinTech sector should be encouraged to carry out researches regularly to enable them produce new services to satisfy consumers’ growing needs. For new products and platforms however, there will be the need to understand the capital market components of such</p>

	products, identify and work with other regulators of these products, understand the benefits, risks and purpose which the new products tend to serve and establish whether such products could be regulated by existing rules or new rules have to be made or the existing rules have to be modified. SEC should also encourage the development and introduction of FinTech-led innovation in the market.
Respondent 8	SEC should intensify its efforts to raise awareness on the benefits of investing in the Nigerian capital market and also in introducing new products. This will motivate firms to more innovative. It should also ensure that FinTechs comply with industry standards in data exploitation, data minimisation, information security, responding to cyber incidents and periodically assess their security posture for systemic vulnerabilities.
Respondent 9	More firms should be encouraged to invest in FinTech. This will increase the level of competition in the industry. But this will tend to pose new challenges to the government. However, by continuously building their technical skills, regulators and government officials can keep up with new FinTech business models and regulate them properly. Equity financing/crowdfunding are to be regulated by the SEC, while payments and lending are to be regulated by the CBN. In addition, SEC and other regulators in the industry should leverage on the regulatory sandbox to be made available to FinTechs by the Nigerian Inter-Bank Settlement Scheme instead of building individual ones. Lastly, a sandbox may be created by the SEC to enable live testing of innovative products by FinTech companies before being offered to the public.

**FUNDING**

**Question 10:**

- Funding was one of the challenges raised by some FinTech players. For proper context, six out of the ten richest people in the US made their fortunes through technology. They

also have significant equities in several tech businesses. Whereas in Africa, only one out of the ten richest people on the continent grew rich from a tech-related business. Of Forbes's list of top 10 Nigeria's billionaires, only 3 of them have some form of exposure to start-ups in the Nigeria tech ecosystem. Has FinTech not done so well as to attract these investors, or what do you think might be the challenge?

Respondent 1	Most FinTech companies, especially start-ups, tend to go through multiple funding stages as they grow before they can become established businesses. License cost is very high in Nigeria, compared to other African countries. For instance, minimum shareholder fund for super licence is ₦5 billion, licence fee is ₦2 million and renewal fee is ₦1 million. Another problem is the fact that the Nigerian capital market is overdependent on foreign capital for liquidity.
Respondent 2	Most domestic investors are not tech inclined. This has discouraged them from seeing the opportunities in the FinTech sector. Multiple taxes and inadequate facilities, like inconsistent power supply, have also discouraged potential investors.
Respondent 3	Funding is a serious challenge to most FinTech companies, especially start-ups. This has discouraged most investors who do not have sufficient capital to pull the company through the different levels and stages which require funding before the company can become a well established business. The cost of FinTech licence is very high in Nigeria. This is a serious problem. It is a major factor that has hindered the flow of investment into the sector.
Respondent 4	The cost of running a FinTech company is very high, starting from the huge cost of obtaining licences. Minimum shareholder fund (SHF) for standard licence is about ₦3 billion. To make

	<p>matters worse in Nigeria, the access to capital tends to be limited in emerging markets and depends on a variety of factors, including stage of product maturity, background of founders and target customer segment. The government needs to step in, like those of other countries, to help ease the burden of accessing capital by establishing FinTech funds, typically alongside the private sector.</p>
Respondent 5	<p>The high level of risk and uncertainty is a reason why potential investors are sceptical to invest in the FinTech sector. They may not be able recoup their investment for a long time. It is very expensive to meet the minimum requirement for shareholder fund (SHF) for basic licence. Licence fee and renewal fee are other expenses. Cost has been a major barrier to entry into the industry.</p>
Respondent 6	<p>The reason for the low investment participation in the FinTech sector is due to lack of sufficient funds on the part of investors and lack of market confidence. It is also due to poor trading operations, inadequate infrastructures, poor communication of value proposition and lack of innovative solutions to encourage FinTech investments.</p>
Respondent 7	<p>There are some reasons why investors are scared of the Nigerian FinTech industry. Large segment of the population are unaware of FinTech services, particularly those in rural areas. Just over 20% of Nigerians even own a smartphone, which is essentially a prerequisite for accessing the majority of fintech products on the market. Above, it requires huge capital to set up and operate a FinTech company. A few countries have established financing schemes for the promotion of advances in the financial sector. One example is the Monetary Authority of Singapore's SGD 27 million SGD Artificial Intelligence and</p>

	Data Analytics Grant (AIDA), which offers 50 to 70 percent reimbursement to financial institutions and research firms on projects that leverage artificial intelligence and data analytics techniques to generate insights, formulate strategy and assist in decision making. The Nigerian government needs to emulate such to attract investment in the FinTech industry.
Respondent 8	For a developing country, the FinTech industry in Nigeria is doing great. Annual turnovers are very high and net earnings are equally very high. Most of these companies offer savings and loan services. The current trend is that most new players in the FinTech sector are now offering investment opportunities to their customers. For instance, Cowrywise has joined the league of FinTech start-ups adding investment opportunities to its platform. The reason is to ensure that funds stay within the formal economy. Nigerian FinTech industry has the greatest potential of growth in Africa. In 2018 alone, FinTech start-ups attracted about \$360 million, equivalent to a third of total venture capital investment raised throughout Africa.
Respondent 9	There is a fundamental problem limiting the scope of fintech and its potentials in Nigeria. Most people in the country either do not have a phone, or cannot afford requisite data to access these services. Unlike other African countries like Ghana, Togo and Senegal, Nigeria lacks a national backbone network through which high-speed internet can be extended across the country. However, due to the large market, the Nigerian financial system has seen more FinTech start-ups or investment than any other African country, apart from South Africa. The total value of Automated Teller Machines (ATM) transactions within the first quarter of 2019 was ₦1.5 trillion, aside bill payments and funds transfer over the ATM.



**Question 11:**

- Do you know about the long-term plan of \$500 million innovation fund that was determined for these start-ups by the government and African Development Bank (AfDB)? At what stage is it now?

Respondent 1	That will be a great stride if the government can make an arrangement with AfDB but I am not aware of that. I am only aware that the Federal Government announced a \$20 million technology fund for young innovators February this year (2020). This was approved by the Bank of Industry (BOI).
Respondent 2	No, I am not aware of that fund.
Respondent 3	Yes, I know about it. We actually hoped as FinTechs to have these financial aids from the AfDB but bit has not been possible. The ASEA has been urged to assist FinTech start-ups with the necessary funds they need to promote their ventures. It has given a grant of \$1.2 million for this course.
Respondent 4	The long-term plan of \$500 million innovation fund that was determined for FinTech start-ups in 2018 by the government and African Development Bank (AfDB) was to no avail. This was why the government established a fund of \$268 million for Nigerian tech innovators 2 years later to assist these digital firms.
Respondent 5	The government only tasked the African Development Bank to invest \$500 million as innovation fund to support technological companies in Nigeria. There was no former agreement to that till date.
Respondent 6	The \$500 million innovation fund proposed by the government through the AfDB has not been realised. Although the African

	Securities Exchanges Association gave a grant of \$1.2 million to assist in the development of the FinTech sector.
Respondent 7	I am not aware of any such agreement between the government and the AfDB. I am only aware that the Federal Government approved over \$250 million to be disbursed to support young technology innovators and agricultural enterprises.
Respondent 8	The government, in the bid to assist FinTech companies across the country, made a move to get the necessary financial support from the AfDB. Till date, the final stage of the agreement has not been reached.
Respondent 9	In 2018, after visiting tech start-ups and hubs around the country, including the well known Silicon Valley, the Federal Government had talks with the AfDB to provide \$500 million innovation fund for technology and creative sector. However, till date nothing has been done.

## CHALLENGERS

### Question 12:

- Beneficiaries of agent banking like rural dwellers and SMEs do not seem to appreciate it, hence the low patronage. Consequently, transaction cost is still very high. This is because most rural dwellers still have to travel to urban areas where traditional banks are available and waste a lot of time queuing for services. What will be the reason why the consumers still prefer the traditional banks?

Respondent 1	Consumers tend to prefer traditional banks for a few reasons. Their operations are safe, they have designated offices and their interest rates are relatively lower.
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Respondent 2	FinTechs rely on data, which is vulnerable to attack and misuse. The interconnected financial systems further accentuate the threat of data theft and cybersecurity. If the risk of cyber security is not curtailed, then it may lead to financial instability. Most consumers prefer banks just because of this fear.
Respondent 3	Most rural dwellers still have to travel to urban areas where traditional banks are available and waste a lot of time queuing for services. This is because of the lack of trust they have for the online transactions.
Respondent 4	FinTech does not seem to mean much to rural dwellers. Beneficiaries of agent banking like rural dwellers and SMEs do not seem to appreciate it, hence the low patronage of FinTechs.
Respondent 5	Consumers in rural areas prefer traditional banks to FinTech because they are scared of cybercrimes. They believe that banks' operations are safe, they have designated offices and their interest rates are relatively lower.
Respondent 6	The efficiency of every FinTech company is dependent on access to data, and the limited data makes it difficult to identify potential customers, develop applications to meet the specific needs of investors and monitor competition. Access to data is also important for regulators to adopt the use of supervisory technology (SupTech). The Nigeria Data Protection Regulation 2019 will potentially affect FinTech's access to data, because of the requirement of lawful processing.
Respondent 7	The existing regulatory framework in the Nigerian capital market neither provides enough clarity on the role of FinTech companies nor clearly articulates their licensing and compliance requirements. This limits its services to the public,

	especially those in remote areas.
Respondent 8	There is uncertainty on how regulators intend to treat certain FinTech products like crypto assets. This lack of clarity creates uncertainty in the minds of innovators. This also makes the public, particularly rural dwellers, sceptical of the operations of FinTechs.
Respondent 9	Uncertainty and ignorance are a major reason rural dwellers still have to travel to urban areas where traditional banks are available and waste a lot of time queuing for services. They need to be educated.

- **Question 13:**

Cost of maintaining ATM sites has been pointed out as an impediment to growth. Should banks outsource the entire ATM service to a FinTech with the capability to manage them and run them efficiently? There may be a strong case for outsourcing the service. Reports have it that the cost of ATM support contract is much less from fintech companies like Inlaks compared to what NCR will charge. Won't outsourcing also mean that banks have more time on their hands to focus on providing better customer service?

Respondent 1	The reduction in bank charges has made it unnecessary for banks to manage ATM sites. It will be more profitable to outsource the entire ATM service to a FinTech with the capability to manage them and run them efficiently.
Respondent 2	The CBN reduced charges on cash withdrawals through other bank ATMs to a maximum of ₦35 after the third withdrawal within the same month. This actually reduces income from ATM and making difficult for banks to maintain ATM sites.

Respondent 3	The reports that have it that the cost of ATM support contract is much less from <u>fintech companies like Inlaks</u> compared to what NCR will charge are accurate. It costs banks more to manage ATM sites.
Respondent 4	One area that banks and FinTechs can collaborate is that of ATM. Banks can outsource ATM to FinTech companies that can manage them efficiently.
Respondent 5	The cost of maintaining ATM sites is presently below the revenue generated from it. It will be preferable for banks to contract it to FinTech companies that can manage them very well.
Respondent 6	In the latest guide to banks by the CBN, the new reviewed fees on ATM was released. There was a general reduction in bank charges, making it difficult and expensive for banks to manage ATM sites.
Respondent 7	It is high time banks looked at the costs of running their ATM sites. The CBN's latest guide to banks spelt out all the reductions to bank charges. Based on the new reviewed fees on ATM was released, it would be better for banks to contract it to FinTechs.
Respondent 8	The outsourcing of ATMs to FinTEch has been given a second thought after the gross reduction in ATM charges by the CBN. Outsourcing it to FinTech will be a good move.
Respondent 9	The CBN announced a review of fees on ATM, card maintenance and electronic transfers. The CBN reduced cash withdrawal charges and removed Card Maintenance Fees (CAMF) on all cards linked to current accounts. All these and many more reduce the income generated from ATM. It has

	become increasingly unprofitable for banks to manage ATM sites.
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- **Question 14:**

**As pointed out by various experts, the future of the financial sector will rely on collaborations and mergers between banks and FinTechs in order to stay ahead of changing times. Do you think traditional financial players should embrace the rise of these FinTech companies by investing in these platforms and working in collaboration with them since competing against them will do banks more harm than good. Or do the banks need to develop more digital products and offer their solutions that are easy to access?**

Respondent 1	<b>The financial sector is characterized by high level of competition. Hence, traditional banks should embrace the rise of these FinTech companies by investing and creating their own platforms. This will enable them survive the competition in the sector by the new financial players.</b>
Respondent 2	<b>Traditional banks can either collaborate or compete with FinTechs. However, it will favour both parties if they collaborate. Traditional financial players should embrace the rise of FinTech companies by investing in their platforms and working in collaboration with them since competing against them will do banks more harm than good.</b>
Respondent 3	The end game of banks investing in start-ups is confusing. If it comes out well, there will be a one-off financial windfall, but presumably one would also infer that the disruption faced by the bank has now scaled. Competition exists amongst banks and amongst FinTechs, so having competition among banks

	and FinTechs is the only reality. Having a learner virtual operation, more flexibility through not being regulated as deposit money banks, FinTech start-ups are able to attract more customers and become very competitive.
Respondent 4	It will be difficult to collaborate. In fact, acquiring FinTech start-ups by banks may lead to integration difficulties and the zero-sum game of cannibalizing existing offerings via the start-ups' own. With employees from non-traditional banking backgrounds adding unbiased perspective, the FinTech industry is refreshing the branding of the legacy services that is trying to upend.
Respondent 5	Banks should be more innovative with their capital and start upshot FinTech ventures. This could be in the form of spun off independent groups, capitalized with equity and with no internal transfer pricing or involvement from the parent company. As pointed out by various experts, the future of the financial sector will rely on collaborations and mergers between banks and FinTechs in order to stay ahead of changing times.
Respondent 6	They should compete. Healthy competition can bring out the managerial and innovative best in both parties. I don't see collaboration has possible. Banks should invest in FinTechs. In fact, many would call this move of investing in the enemy a Machiavellian touch of genius, but it could also be called overly-passive. Banks need to develop more digital products and offer solutions that are easy to access like FinTechs.
Respondent 7	The future of the financial sector will rely on mergers between banks and FinTechs. Both entities are dependent to some extent. Specialized FinTech companies follow a mantra of

	earning trust through better customer services and referral-based client acquisition which can fill a gap in the traditional banking system.
Respondent 8	Collaboration is the way out. Banks should acknowledge the inevitability of FinTechs. In fact, FinTechs can use their platforms as enablers of banks' financial services. Banks can develop more digital products and offer their solutions that are easy to access. It does not deprive FinTech companies from providing their services to the public.
Respondent 9	A traditional bank largely ties customer in by offering them a range of services that make them sticky, through increasing switching cost. They should set up their own FinTech Rand D offshoot to create proprietary solutions. Collaborating will not help banks. They should invest in their own FinTech facilities.

## INFRASTRUCTURE

### Question 15:

- Lack of a functional database has been identified as one of the biggest problems faced by FinTech. Since 2016 when the National Collateral Registry was launched, it has achieved very minimal success. The NCR is yet to have a major positive impact on FinTech start-ups. FinTech owners have mentioned that non utilization of NCR is caused by lack of publicity, lack of infrastructure (power supply), lack of orientation (CBN). Financial institutions need to be educated on how the NCR works and its essence. Are you aware of such?

Respondent 1	I agree with the general notion that the National Collateral Registry (NCR) is yet to have positive impact on FinTech
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	companies, particularly on start-ups. It has not been utilized by FinTechs. Otherwise, online transactions would have been more secured.
Respondent 2	The NCR will help to create confidence in the system and minimise incidence of fraud. Although only registered users, that are regulated by the CBN, can save data to the database. This is to ensure that these data are secured.
Respondent 3	There is this general notion that NCR has not been as beneficial to FinTech start-ups. I think it is because they need to be educated on how it works. There is also the problem of distrust for the system as to whether data are actually safe.
Respondent 4	Financial institutions need to be educated on how the NCR works and its essence. The NCR is yet to have a major positive impact on FinTech start-ups. It is true that FinTech owners have mentioned that non utilization of NCR is caused by lack of publicity, lack of infrastructure (power supply), lack of orientation (CBN).
Respondent 5	The access to infrastructure is usually a major challenge in Nigeria and Africa as a whole. The idea of NCR is not bad but lack of infrastructure has always been a problem. For instance, how do start-ups access such database when power supply is erratic?
Respondent 6	Lack of a functional database has been identified as one of the biggest problems faced by FinTech. The non utilization of NCR is caused by lack of publicity, lack of infrastructure (power supply) and lack of orientation.
Respondent 7	Financial institutions need to be educated on how the NCR works and its essence. The lack of a functional database is the

	biggest problems faced by FinTech in Nigeria.
Respondent 8	There is lack of centralized database in Nigeria. This is affecting financial institutions' activities. Like you said, the non utilization of NCR is caused by lack of publicity, lack of infrastructure (power supply), and lack of orientation.
Respondent 9	The NCR is a laudable idea but there is need for more publicity. The public and even some investors are not aware of its existence and those that even do, do not know how it works. This is one aspect the CBN has been working on trying to enhance public awareness of the NCR.

**Question 16:**

- When asked the biggest issue FinTech companies face, cybercrime was mentioned amongst others. This is due to inadequate security and poor database system. There is the problem of inadequate infrastructure, and where it exists, start-ups can sometimes find it difficult to access resources needed for a successful organization. What are the possible solutions that can be applied to such issues facing the sector?

Respondent 1	The distrust the public has on FinTEch is due to its easy attack by cyber thieves. These online platforms need to be more secured.
Respondent 2	Cybercrime is easily committed on online platforms because of the lack of a secured database. The KYC scheme and proposed harmonized database system will help overcome this challenge.
Respondent 3	The biggest issue with FinTech companies is financial fraud due to inadequate security and poor database system. There is

	the problem of inadequate infrastructure. The solution is to provide the relevant infrastructure and ensure safety of online data.
Respondent 4	Cybercrimes are due to inadequate security and poor database system. In addition to the above, start-ups may suffer from the problem of inadequate infrastructure, and where it exists, start-ups can sometimes find it difficult to access resources needed for a successful organization.
Respondent 5	While many FinTech start-ups operate entirely online without physical offices, they can still face challenges when it comes to accessing enough capital, talents and other resources needed for FinTechs to grow.
Respondent 6	Apart from cybercrimes, another big problem is that of inadequate infrastructure, and where it exists, start-ups can sometimes find it difficult to access the needed resources for their growth. Data need to be secured and adequate infrastructures need to be provided.
Respondent 7	There is the need to review all regulations to see that those hampering the development of FinTech industry are jettisoned.
Respondent 8	Cybercrime has always been the biggest issue FinTech companies face in Nigeria. To overcome this, there is the need for a centralized and harmonized database.
Respondent 9	The CBN has permitted FinTechs sandboxes which allow start-ups to test new technologies without adhering to all the regulations that govern existing financial institutions. This will support the growth of the FinTech industry in Nigeria.

## CBN

### Question 17:

- Apart from targeting at least 80 percent inclusion rate in 2020, the CBN also plans to raise the number to 95 percent by 2024. By September, Figures from EFINA put the rate of inclusion at 63.2 percent, meaning as much as 36.8 percent adults still lack access. What is the possibility of achieving this target?

Respondent 1	I don't think it is going to be easy. Reducing the number of excluded persons – youths, women, unemployed and rural dwellers is not an easy task.
Respondent 2	It is possible but gender gap has recently appeared to be the difference. There are more women excluded than men. To include more women, gender gap in income need to be addressed; more women need to be empowered.
Respondent 3	The 95% target by 2024 can be achieved if the CBN enable the rapid growth of agent banking and networks with nationwide reach. There can be lower entry requirements for all players to encourage them.
Respondent 4	If the CBN creates a conducive environment for the expansion of DFS, it can achieve its target of 95% by 2024. It should ensure that its regulations encourage healthy competition and balancing different interest rates.
Respondent 5	I don't think it is achievable, with merely 5% of the adult population excluded by 2024 is a giant move. Nigeria lacks basic amenities to make it happen, there are bad roads, lack of network, inconsistent power supply, high rate of illiteracy and unemployment.
Respondent 6	I think it is possible. The CBN is doing great already. With

	focus on the highly excluded persons, dissemination of more POS terminals, provision of electricity in rural areas and ,ore sensitization programmes, it will be achieved.
Respondent 7	There should be a drive for cashless payment channels such E-payments, create an environment conducive for serving the most excluded persons and harmonize KYC requirements to increases access to financial services.
Respondent 8	The 2024 target can be achieved. To achieve this, excluded groups should be targeted at. Also, the deployment of financial and non-financial resources from the public sources should focus on providing incentives that encourage private sector investment such as tax holidays, guaranteed investment repatriation, etc.
Respondent 9	It is possible. The world is digital. Though some efforts must be put in place. Stakeholders should continuously focus on particularly excluded groups such as rural dwellers, youths, SMEs, etc. Also, government agencies should provide appropriate, innovative and stable regulatory environment such as sandbox, which allows experimentation and rapid adjustment.

**Question 18:**

- There have been thoughts that telco participation is the missing piece of the Nigerian financial inclusion puzzle. In 2018, telcos finally received a window to enter the financial services space via the Payment Service Bank (PSB) licenses which are available to not just telcos, but also mobile money operators, retail chains (supermarkets) and banking agents. With the category and number of DFS providers

increasing, it will be interesting to observe the impact this will have on inclusion rates. But unfortunately, this is yet to go into effect. What are the possible bottlenecks you think will be encountered by these telcos when fully in operation?

Respondent 1	The notion of supporting digital financial services (DFS) is to enhance access and utility of financial services. For this, telcos has a major role to play. However, one major challenge awaiting telcos is the impact of internet of things that is leading to explosive growth in the connected devices. This growth is generating trillions of new data sources and will push data demand to zettabytes per year.
Respondent 2	Nigeria has one of the largest telecommunication market in Africa. One possible bottleneck that telcos will encounter in Nigeria is the need to decentralize the purchasing and decision power, both internally and externally, because of the essentially agile reconfiguration of the cloud. It will also be affected by explosive growth in the demand for new data.
Respondent 3	The major challenges facing the telecommunication sector are low consumer purchasing power, currency movements and loss in global investors. Telcos are faced with a number of challenges with the emergence of new threats that are powered by new technologies. So a number of technical and operational innovations are needed to meet the expectations of customers of complete system security from network till the device level.
Respondent 4	In line with the National Financial Inclusion Strategy (NFIS), the CBN developed the Sustainable and Inclusive Digital Financial Services (SIDFS). It has the aim of creating an inclusive ecosystem for financial services. Security of networks will be one major challenge for telcos and providing data and voice services that are high quality, reliable and affordable.

	Another challenge is the need for telecom firms to upgrade their IT infrastructure.
Respondent 5	The role of telcos cannot be over emphasized. To ensure longterm growth and sustainability, the telcos sector needs to focus on innovative business practices by investing their assets in more creative services that focus primarily on meeting consumers’ needs. One bottleneck that will be encountered by telcos is the need for telecom firms to upgrade their IT and connectivity infrastructure for efficient services.
Respondent 6	The success of telcos is faced with some challenges. Nigeria’s weak macroeconomic conditions have led to weak labor market dynamics (high unemployment and underemployment rates), reduced disposable income and poor corporate performance. Operational support services like service configuration, customer care, order fulfilment, etc are becoming increasingly complex. Hence, the cost of handling these operations will increase financial overhead.
Respondent 7	The telecommunication sector has contributed immersely to the Nigerian economy. The sector has experienced rapid growth and has helped in mobile banking. The new telcos has the challenge of adapting their organizations to digital transformation by creating strong cross-functional interfaces.
Respondent 8	The Nigerian telecommunication sector has evolved over the years to an oligopolistic market structure. The sector includes strong multinationals like MTN, Airtel, Glo and 9mobile. Without a solid telecommunications infrastructure, there will be no growth and development. However, telcos has the challenge of high financial overhead. With millions of subscribers, a variety of new products, customized solutions,

	there is the tendency for a high cost.
Respondent 9	The CBN has granted approvals-in-principle (AIP) to three new Payment Service Banks (PSBs) in the country. This is to enhance financial inclusion and to boost the development of the payment system by increasing access to deposit products and payment services through a secured technology-driven environment. The CBN's DFS has also helped to enhance financial inclusion. Telcos will help to enhance inclusion rates but there is the challenge of structural rigidity. One bottleneck that will face telcos is that telecom firms in the country will have to upgrade their IT facilities. There is also the bottleneck of seeking tools for maintaining organizational flexibility.

**Question 19:**

- Agent banking has not been so much of a success. They are currently faced many business challenges which limit their viability, especially in regions where economic activity is minimal and mobile network infrastructure is absent. How can we improve the viability of agents' business and make it a priority if we are to succeed at widescale last mile delivery of financial services?

Respondent 1	The main challenge which limits the viability of agent banking in Nigeria is the relative lack of interest among deposit money banks in taking financial services down to the market. To improve their viability, DMBs should be made to see the great role agent banking plays in enhancing financial inclusion.
Respondent 2	There are alot of challenges affecting the growth of agent banking in Nigeria. Public distrust, insufficient POS machines, illiteracy, lack of amenities, etc. We improve the viability of agents' business and make it a priority if more POS terminals are provided by the CBN and there is constant



	power supply in rural areas.
Respondent 3	The challenges are basically the small number of installed POS machines and the lack of interoperability. The pace of financial inclusion can be accelerated by educating the public on the security and need for POS and more of these machines should be made available.
Respondent 4	There are a lot of challenges. Although the CBN has tried to consolidate and clarify the AML/CFT framework, it is possible that some KYC constraints, such as the need to verify customer's identity and address, may restrict the growth of agent banking in the country. This is further compounded by the issue of lack of integrated national identity system.
Respondent 5	There are challenges of inadequate POS terminals, lack of public trust, lack of bank interest, just to mention but a few. We can improve the viability of agents' business if more POS terminals are provided and more persons are trained on how to utilize it.
Respondent 6	There are challenges of lack of POS machines, lack of consistent electricity supply, poor network, lack of network services and armed robbery attack. Promoting agent banking means these challenges should be taken care of.
Respondent 7	There is a large informal sector with a large number of unskilled persons. Illiteracy has been a major problem. Distrust among most people.
Respondent 8	In remote rural areas in Nigeria, there is a lack of POS machines and where these machines are available, there is a gross inadequacy of amenities. POS machines cannot be used in areas where there is no electricity supply and network

	services. The CBN has set targets to deploy over 500,000 POS terminals by end of 2020.
Respondent 9	There are restrictive regulatory issues, high cost of setting up POS system, large number of unbanked public, intermittent power supply, lack of interoperability between POS devices which limit banks' ability to provide effective agent banking services. However, as part of its drive to create a cashless society, the CBN is working to increase interoperability. It has issued directives directing banks and other payment service providers to ensure that all ATM and POS machines are configured to accept and process all payment card schemes.

## COMPLIANCE

### Question 20:

- In August 2019, Google updated its policies for micro-lending apps as it witnessed the proliferation of these platforms in its app store, stating that it will not allow apps that promote personal loans which require repayment in full in 60 days or less from the date the loan is issued. Chinese-backed and consumer Internet company, Opera, launched OPay in 2018, it aggressively disrupted the Nigerian technology space, launching an array of consumer-focused services with enticing incentives. But recently users could no longer access the loan feature because OPay has removed it. The company has also removed its loan description as part of the features it offers on the Google Playstore. Similar to OPay, in the respective descriptions on Google's Play Store, most micro-lending apps claim to offer a repayment period of 91 – 356 days, but the actual repayment dates can be as low as 15 days, much lower than the required threshold of 61 days. According to reports, Opera claims to offer a 33% annual percentage rate (APR), but the actual percentages being charged are between*

*365% – 438%, flouting Google’s policy against misleading descriptions that are meant to lure in users.*

In discussions with users of other platforms like Branch, Carbon, FairMoney, and Aella Credit, we were able to confirm that the minimum repayment period for these apps is usually a month, and in most cases, the average APRs of these apps hit 250%, but are instead disguised as low monthly interest rates of 20%. This looks like the trend for many FinTech companies that have spiralled down and eventually closed down. What is the likely reason for this and how can this be combated. If this is true, will customers not always trust the traditional banks more than FinTech companies, just as discovered earlier on this research?

Respondent 1	It is true. As at October 2019, FinTech companies put pressure on traditional banks to offer a higher interest rate. This is the main reason many FinTech companies closed down. This is also the reasons customers still patronize banks because they tend to trust these traditional banks more than FinTech companies.
Respondent 2	I don’t think there is any reason why a FinTech firm will reduce their annual percentage rate (APR) when it is actually very high. If that is the case, they will become uncompetitive and customers will prefer the traditional banks.
Respondent 3	The claim that the minimum repayment period for FinTech apps is usually a month, and in most cases, the average APRs of these apps hit 250%, but are instead disguised as low monthly interest rates of 20% is not true. FinTech companies offer platforms that give credits at affordable rates. We still offer customers reasonable loans at affordable rates.
Respondent 4	Banks deliberately crash interest rate to ward off FinTechs which they considered as serious threats to their existence. This

	<p>is the real reason many credit platforms couldn't survive. The CBN has unwittingly put pressure on money lending FinTechs making things difficult for them.</p>
Respondent 5	<p>It is not true, I have been in the industry for some time now. The statement that the minimum repayment period for some credit apps is usually a month may be true, but the statement that in most cases, the average APRs of these apps hit 250% and are instead disguised as low monthly interest rates of 20% is not true. FinTechs that closed down may be due to the high cut-throat competition in the financial sector.</p>
Respondent 6	<p>A survey conducted in 2019 revealed that banks charge as much as 5% monthly for payday loans. Microfinance banks such as Page Financials charge as much as 5% monthly. RenMoney, well known for aggressive lending, charges about 2.825% monthly. Some payday lenders even claim that their interest rates are free of hidden charges. The truth is that the average APRs of their apps are as high as 250%. They find it really difficult to survive competition from traditional banks.</p>
Respondent 7	<p>The reduced interest rates from commercial banks as a result of CBN's policy, has put FinTechs in great danger. It is true that the minimum repayment period for these online credit apps is usually a month, and in most cases, the average APRs of these apps may hit 250% and even above, and it is also true are instead disguised as low monthly interest rates of 20% just to win the hearts of their customers.</p>
Respondent 8	<p>It is true. There are evidence showing that the annual percentage rate (APR) of these FinTech apps hit 250% and above, but are instead disguised as low monthly interest rates of 20%. It could be the reason why some of them have</p>

	eventually closed down.
Respondent 9	While they are still a small segment of the financial market, FinTech start-ups have set the tone for changes in interest rates. They provide collateral-free loans which have become very popular as seen in cases of Carbon (formerly Paylater) and Opera's Opay. Recent findings on Opera's lending platforms have exposed a lot of microlending apps that employ predatory practices that violate Google's policies for loan apps in its Play Store. However, the competition from traditional banks tends to outweigh FinTEchs, accounting for the reason why most FinTech start-ups fold up. For instance, while GTBank's rates is just 16% per annum last year, FinTEchs like QuickBucks has 60%, Renmoney has about 34% and Page Financials has 60%.

## REGULATION

### Question 21:

- Regulation Technology (RegTech) provides a key opportunity to manage the cost of regulatory compliance, as it grows in step with institutions overall data strategies. As much as I know, financial institutions' digital business models do not ensure the digitisation of the risk function, they do enable it because they drive the expansion of risk management. The need to match technology with regulatory requirements cannot be overemphasised. RegTech we know, uses new technologies such as machine learning and artificial intelligence to help financial institutions meet the challenges of regulatory monitoring, reporting, compliance and risk management, while driving down compliance-related costs and enabling a fully compliant experience for their customers. As said earlier, levels of regulation are on the rise for financial institutions. These can also encompass risk-in-real-time (RIRT) capabilities, which include know your customer (KYC), customer due diligence (CDD), enhanced due diligence (EDD), transaction

surveillance and authentication, and anti-money laundering (AML) technologies. How much in use is RegTech in this sector, both for regulators and the institutions?

Respondent 1	RegTech is very much in use today. It uses new technologies such as artificial intelligence and machine learning to help FinTech companies meet the challenges of regulatory monitoring, reporting, compliance and risk management, which are its main functions as we all know. RegTech has been forcefully driving down compliance-related costs and enabling a fully compliant experience for their customers, both for regulators and the institutions.
Respondent 2	RegTech has helped to increase the levels of regulation for financial institutions, which has been bedevilled by financial crimes and fraud. Like you said, these regulations include risk-in-real-time capabilities, which include know your customer (KYC), customer due diligence, enhanced due diligence, transaction surveillance and authentication, and anti-money laundering technologies. RegTech is so much relevant. They have assisted the CBN in developing various potential solutions that address security issues around KYC such as online boarding solution, biometric identity verification and seamless automated KYC authentication.
Respondent 3	One of the importance of RegTech is that it provides a regulatory technology application called blockchain for seamlessly processing security transfers and transaction settlements. It has also provided a key opportunity to manage the cost of regulatory compliance. RegTech has been very useful in this aspect. Like you said, the need to match technology with regulatory requirements cannot be overemphasised. This is one gap that RegTech has consistently

	covered.
Respondent 4	RegTech is very much in use. It has provided monitoring and surveillance systems using Big Data for fraud and misconduct. There are several other RegTech initiatives which has been introduced in Nigeria. For instance, in 2014, the CBN in collaboration with other banks launched the Bank Verification Number (BVN) as part of the CBN's KYC strategy. This BVN policy has helped FinTech companies alot in the digital credit space to properly identify their customers. So RegTech has been so useful to both FinTEchs and traditional banks.
Respondent 5	RegTech played a great role in the Know Your Customers (KYC) scheme of the CBN as an institution. KYC has helped to reduce fraudulent practices, particularly the threats of identity theft and financial fraud in the financial industry. So far, regulators, institutions and customers have been very compliant.
Respondent 6	The term RegTech refers to a set of companies and solutions that emerge innovative technology and regulation to address regulatory requirements across industries, including financial services. It is known in the provision of natural language processing for interpreting legislation and automatically extracting requirements.
Respondent 7	RegTech is an emerging field within the financial services industry that uses information technology to enhance regulatory processes. KYC is about knowing identifying and verifying your customers and their background. Though very expensive, KYC has helped to reduced fraud. We verify the following: bank account, driver's license, BVN authentication, ID card, and facial capture and our customers have been

	responding very well to these KYC solutions.
Respondent 8	<p>RegTech is so much in use today. Its presence among financial players is increasing. Like you said, the levels of regulations are on the rise for financial institutions. RegTech initiatives have created a watch list which is a database of bank customers. These initiatives of RegTech are vital in transaction surveillance and authentication, and anti-money laundering technologies. The dual threats of financial fraud and identity theft have made RegTech come out with numerous initiatives to protect financial transactions in Nigeria. FinTech companies are made to comply with these numerous regulations on KYC. Regulations such as face capturing, Email verification, bank account, driver's license, etc have been put in place for this purpose. For the level of user's compliance, it has been encouraging.</p>
Respondent 9	<p>RegTech is explicitly purposed to address the requirement for financial services firms to be in compliance with all relevant, government-imposed anti-money laundering and know your customer regulations and directives. There are various aspects of RegTech. These are regulatory reporting (examples are Bearing Point, risk technology or RiskTech), risk management (examples are Cloud Margin, collateral management), compliance, identity management and control, and transaction monitoring (an example is identity mind). RegTech make sure that all FinTech companies and financial players comply with the various AML and KYC directives that are of global standards.</p>

**Question 22:**



- Looking at the functions of RegTech, it seems to be like that of the proposed Sandbox operations of compliance testing. Is there a link to the 2 or are they independent of each other and thus repeating same functions?

Respondent 1	RegTech guides consumers, deliver customized messages triggered by specific actions and extract information from uploaded documents. As malware becomes more sophisticated, monitoring suspicious behaviour to detect malware has become increasingly difficult. Sandbox helps to detect such malwares.
Respondent 2	They are different. RegTech performs ongoing monitoring to avoid repeated requests for information. It utilizes algorithms to reduce the number of false positives over time. It allows compliance team to focus on complex cases instead of spending precious time on manual tasks that can be easily automated. But sandbox is useful to detect threats. Many threats recently have employed obfuscation techniques that can evade detection from endpoint and network security products.
Respondent 3	Over the last few years, the success of FinTech companies has depended on the market itself. A large number of retailers have been abandoning traditional banking in favour of FinTechs because they felt alot of fees imposed on them by banks are not justified. RegTech helps to regulate the market and monitor FinTech companies activities. On the other hand, sandboxes protect firms against viruses and malwares.
Respondent 4	RegTech helps to incorporate strong methods of customer authentication to ensure safe business environment for FinTechs. Sandboxes, on the other hand, helps to avoid harming the device on which the code is running, the network or other connected devices. Using a sandbox to detect malware offers an additional layer of protection against security threats,

	such as stealthy attacks and exploits that use zero-day vulnerability.
Respondent 5	RegTech is the combination of regulation and technology which is used to support the procedure of reporting, adaptation and compliance with internal rules and regulations. RegTech has become very important across the world today. However, sandbox is an essential feature of the Java programming language and development environment, where the sandbox is a program area and set of rules that programmes need to use when creating Java code, called an applet.
Respondent 6	They are independent. While RegTech is a group of special companies that regulate business activities to help them comply with regulations efficiently, sandbox on the other hand is an isolated testing environment that enables users to test run programs. RegTech also helps businesses through automated mapping of regulatory risks to critical business processes, which has reduced the need for manual and duplicate checks.
Respondent 7	They are related. Regtech seeks to balance the possible benefits of FinTech against the need to protect customers and ensure financial stability. It is to enable customers have access to FinTech services. Similarly, without sandboxing, an application or other system process could have unlimited access to all the user data and system resources on a network.
Respondent 8	RegTech can help reduce cost of compliance by simplifying compliance processes. People have been clamouring for this. It can also help to reduce cost of compliance by standardising processes of compliance. On the other hand, sandboxes are used by security professionals to test potentially malicious software.

Respondent 9	They are independent. The main functions of RegTech include regulatory monitoring, supervising, reporting and compliance. But the main function of sandbox is to test new applications or new programming code. It is used to test suspicious programs that contain viruses or any other malware.
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**Question 23:**

- In 2014, CBN in collaboration with the banks in Nigeria introduced a system where they assigned users BVNs which is a unique identification number associated with a user’s physiological and behavioural attributes (fingerprints, signatures, and other information) that can be used for bank transactions across Nigeria. It not only aimed to protect customers from unauthorized access, identity theft and fraud but also identify blacklisted customers. But BVN has faced legal challenges by the National Identity Management Commission (NIMC). NIMC claimed that they had the sole rights for biometric registrations and verifications and contested the right of the CBN to register citizens using biometric information and to issue the BVN. An agreement was reached that requires harmonization of BVN database with the new National Identity Database (NIDB). Other qualified databases with biometric KYC measures are also eligible for harmonization until December 1, 2018. Following that, from January 1, 2019, the use of the new National ID number – and not the BVN – will be mandatory. This is April 2020 and we are nowhere close to the target. Don’t you see this as a distraction to the achievement of the financial inclusion target?

Respondent 1	A major difference between African nations and other countries in North America and Europe is the existence of a centralized database which they have and African countries do not have. The harmonization of the CBN BVN database with the new National Identity Database (NIDB) is the needful right now. So, it is not a distraction to the achievement of the
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	financial inclusion target, rather it will accelerate the process by creating more trust in the industry.
Respondent 2	The harmonization of the new National Identity Database (NIDB), BVN and KYC database is a giant stride. It will help to ensure maximum security in the financial system and the country as a whole. However, this is a distraction to the achievement of the financial inclusion target. It can come up much later.
Respondent 3	This intrusion by the National Identity Management Commission (NIMC) in the financial industry has come as a big distraction to achieving the target of financial inclusion. The use of BVN has helped to protect customers from identity theft, unauthorized access and any other financial crime.
Respondent 4	This is a distraction to the nation. It will take time to achieve. This is why as we speak, a target set for December last year has not been achieved. I even doubt if the harmonization process has commenced. The use of BVN has been working. It has helped to identify financial frauds, minimize financial crimes and create trust in the financial sector.
Respondent 5	The collaboration the CBN had with banks in Nigeria that led to the introduction of a system where they assigned users BVNs which is a unique identification number associated with a user's physiological and behavioural attributes (fingerprints, signatures, and other information) that can be used for bank transactions across Nigeria. I see the new National Identity Database (NIDB) as a welcome development. If achieved, it will create a centralized database system that Nigeria needs right now.
Respondent 6	The use of BVN has been very efficient. I think the issue

	<p>between the CBN and the National Identity Management Commission (NIMC) is irrelevant. It is coming at a time where the main concern should be how to accelerate the process of inclusion of the non-bank public.</p>
Respondent 7	<p>NIMC claimed that they had the sole rights for biometric registrations and verifications. They also contested the right of the CBN to register citizens using biometric information and to issue the BVN. Nigeria has always had this problem. The responsibilities of regulatory bodies are not properly delineated. This is coming as a distraction to the achievement of the financial inclusion target.</p>
Respondent 8	<p>The use BVN has been questioned by the National Identity Management Commission (NIMC). NIMC is the body with the sole rights for biometric registrations and verifications. I don't see the harmonization of BVN database with the new National Identity Database (NIDB) as a distraction to the financial inclusion policy of the CBN.</p>
Respondent 9	<p>In order to ensure security and minimize the incidence of fraud, the CBN, in collaboration with the banks in the country, introduced the BVN system which is a unique identification number associated with every bank user. The new National Identity Database (NIDB) which can also be used for bank transactions across Nigeria, is not a distraction to the financial inclusion scheme of the CBN. In fact, it is a step forward, it will help provide a harmonized database system.</p>

**Question 24:**

- Barriers to entry are one of the biggest issues that FinTech will have here within Nigeria. The cost of license is very high. There is always the problem of regulation rigidity. While some FinTech CEOs are agitating for a review of CBN regulations and licence fees, some believe that this is will help to address the emerging issues in the industry such as risk management and capital adequacy. That these regulations and fees will serve as entry barrier that will protect existing companies in the firm. Are you also thinking so?

Respondent 1	Reviewing some of the regulations and fees that are working against the development of FinTech companies will obviously help to address the emerging issues in the industry such as risk management and capital adequacy. It is not easy to pay huge sums as license fees and still able to give out large loans to customers.
Respondent 2	Some of the CBN regulations have to be reviewed. They are too rigid and strigent. To encourage the growth of FinTechs, license fees have to be reduced. Personally, I don't support entry barriers in a capitalist economy. The entry of more companies into an industry brings more competition, increases output and reduces prices.
Respondent 3	It is not news that some FinTech CEOs are agitating for a review of CBN regulations and licence fees. The regulatory bodies and stakeholders have had series of meetings in the past but to no avail. I believe the regulatory bodies have made them to see reasons for these regulations and how they can assist these companies.
Respondent 4	Like you said, those calling for a review of these regulations and fees believe that this move will help to address the emerging issues in the industry such as capital adequacy and risk management. This cannot be undermined. FinTechs in Nigeria presently are charged higher than their counterparts in

	other African countries. This calls for a review.
Respondent 5	Yes, it is true. Regulations need to be reviewed to help to address challenging issues in the industry such as risk management and capital adequacy. Today, the few FinTech companies are financially adequate. The CBN is making provisions to enable them give out reasonable loans to the public.
Respondent 6	We should note that these regulations create trust in the industry. They show that the CBN is concerned with whatever is happening in the sector. Also, license fees cannot be overruled. Apart from generating income, license fees serve as entry barrier that will protect even the existing companies in the sector. Companies don't like competition, so these regulations also help the existing companies.
Respondent 7	FinTechs complain of regulation rigidity. This is true. Once policies are made, they are hardly amended. A policy may appear to be very good, but once implemented, may have an adverse effect. This is why some FinTech CEOs are agitating for a review of CBN regulations. They shouldn't be fixed. There is the need for regular review to get the best.
Respondent 8	The biggest issue that FinTechs have been facing in Nigeria is the high cost of license. It serves as a barrier to entry and also protects the industry. Otherwise, the industry would have been flooded by incompetent FinTech companies that want to exploit Nigerians.
Respondent 9	Regulations are necessary to check entry and ensure ethical practices. Without these regulations, there will be reduction in standard. It should be noted however, that these regulations and fees actually serve as entry barriers that will protect existing

	<p>companies in the industry. It is also a fact that some FinTech CEOs are agitating for a review of CBN regulations and licence fees. They complain that these regulations and fees hinder their operations. For instance, the renewal of license fees has been seen as an additional cost to firms. But in real sense, these regulations are to consolidate the sector.</p>
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**Question 25:**

- Due to the dual threats of identity theft and fraud, coupled with the issue of insufficient KYC, FinTech companies find it difficult to lend on their platforms. The CBN has given sufficient guidelines to minimise cybercrimes and enable FinTech companies have enough KYC to ensure trust and more lending to customers. What other step do you think can be taken to make the FinTech have strong presence in lending?

Respondent 1	<p>There are several reforms in the Nigerian loan market. The proliferation of FinTech companies which does not require physical contact before giving out loans has called for these reforms. Some of these reforms include the establishment of the National Collateral Registry which provided a centralized data system, the Credit Reporting Act, which established a licensed credit bureau that maintain a database of credits and credit-related information. All these reforms have placed FinTechs in a good stand to give out loans.</p>
Respondent 2	<p>If FinTech companies can offer low interest rates than traditional banks, they will be able to give out more loans and have high investment turnover. This is possible since they are not subject to the usual operational costs of traditional banks.</p>
Respondent 3	<p>To give the FinTech companies strong presence in lending, the government has to provide internet services to all areas</p>



	<p>particularly rural areas. Time is a treasured asset which people are not happy to spend in banks. They will be happy if they can get loans wherever and whenever they want.</p>
Respondent 4	<p>The review of the present numerous regulations will help build FinTech lending ability. These regulations block significant revenue streams, reduce opportunity to enlarge market share, prevent cost efficiency.</p>
Respondent 5	<p>According to a recent survey, about 77% of Nigeria's banking customers use social media, but only 42% of them use online banking platforms. The FinTech companies can convert this passion to cash. They will be happy if they can access loans easily online.</p>
Respondent 6	<p>I think the current effort by the government to promote financial inclusion will boost FinTech lending if achieved. Also, the Nigerian FinTechs should adopt other global solutions such as the merging of artificial intelligence, technology and finance</p>
Respondent 7	<p>It has been a common conclusion in the industry that the regulations prevent FinTech companies from completion and innovation. Nigeria is devoid of specific regulations to guide the stakeholders in the FinTech industry. There are too many regulations. To enable FinTech give out more loans, there must be specific policies enabling such.</p>
Respondent 8	<p>The use of the P2P platforms model adopted in India can help FinTech have strong presence in lending. This is Peer to Peer lending which enables individuals to obtain loans directly from other individuals with FinTech enabled platforms.</p>
Respondent 9	<p>Over the years, the public has been complaining of the high</p>

	interest charged by traditional banks. This is a loophole FinTech can actually take advantage of. To have a strong presence in lending, FinTechs have to give out loans at affordable rates.
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**Question 26:**

- When asked if the CBN regulation was meant to support the traditional banks more than FinTech companies, one response was that the CBN has the primary responsibility to protect banks and the financial sector in general, and these regulations have helped to control entry into the sector and given banks some shield, saying that more FinTech companies will spell more doom for the banks. While another responder said that FinTech companies emerged with products that are substitutes for some banks' products which has created competition. They disrupted the financial system and if the CBN Governor, Mr. Godwin Emefiele, does not proactively put regulations and mechanisms in place to check them, FinTech can cripple banks. How do we relate those statements to yet another one that said that these policies are to ensure the growth of banks and the FinTech companies, and at the same time ensure trust in the financial system?

Respondent 1	Actually, FinTech companies emerged with products that are substitutes for some banks' products. This is not good for banks. This has not only created competition but threaten to push an aspect of banks' services out of the market.
Respondent 2	The existence of FinTechs has already spelt doom for traditional banks. The CBN has no power to annul the activities of digital companies in the country just to protect traditional banks. This is what is obtainable in other countries.
Respondent 3	The CBN is basically concerned with the growth of banks and the FinTech companies alike. Its policies to help control entry into the sector are not new. It has, in the past, put similar

	<p>measures in place to control entry into the financial sector. Banks have been made to merge just to consolidate the financial sector.</p>
Respondent 4	<p>Relating these statements is not really easy. There are those who think supporting FinTech is detrimental to the existence of commercial banks, while there are those who think otherwise. I think creating trust in the financial system will be beneficial to both banks and digital companies.</p>
Respondent 5	<p>The CBN initially made regulations to check entry into the FinTech sector due to the high incidence of cybercrimes and financial fraud in the country, but these firms kept increasing in numbers and more Nigerians are patronising them. The CBN has to make other regulations to protect the sector. This time not against entry but against cybercrimes. This move was however seen by banks as inimical as it can affect their very existence with time.</p>
Respondent 6	<p>The activities of FinTechs disrupted the financial system. They created new challenges to regulatory bodies and to the CBN Governor, Mr. Godwin Emefiele, who proactively put regulations and mechanisms in place to check their activities. There is little the CBN can do in this case, but to ensure security of financial transactions and stimulate development.</p>
Respondent 7	<p>Of a truth, the CBN regulations have helped to control entry into the sector. This gave banks some shield, since the conditions for entry have discouraged some investors. The existence of these FinTech companies has actually disrupted the financial system. Things were no longer as before and banks have to awake to reality. Most banks have started rendering services on these platforms, particularly after the</p>

	CBN has guaranteed some amount of trust in the FinTech sector.
Respondent 8	The policies of the CBN are not to drive FinTech out of the market but to create a safe environment for all stakeholders. It is funny to say the CBN should ignore the activities of FinTechs. They are integral part of the financial sector.
Respondent 9	The CBN policies are to ensure the development of the financial sector. Gone are the days where policies are geared towards traditional banks only. FinTech has come to stay. The growth of banks and the FinTech companies is paramount to the CBN. The policies of the CBN recently will help the public to develop trust in the financial system and consolidate the sector.

**Question 27:**

- Do you think the 65% DMB Loan-to-deposit ratio will cripple the advantage of FinTech companies as banks can afford to lend for a longer period and at a lower interest rate?

Respondent 1	The CBN held loan rates constant and promised to further reward banks who give out more loans to small and medium-scale enterprises. This may actually affect the ability of FinTech companies to give out loans adversely.
Respondent 2	The 65% DMB Loan-to-deposit ratio actually gave traditional banks more advantage over FinTech companies. While banks will be able to give out more loans, FinTechs will be crippled by this.
Respondent 3	The CBN has retained banks' deposit ratio of 65%. The CBN said the rising demand for loans by the real sector is the reason for this gesture. This was to enable banks give out more loans.

	This regulation does not consider FinTech.
Respondent 4	The 65% DMB Loan-to-deposit ratio retained by the CBN is a welcome development. It is to enable banks give out more financial assistance to businesses. I don't think this will affect FinTech companies if they can give out loans at same competitive rates.
Respondent 5	This decision by the CBN as number regulator of FinTech is inimical to the growth of FinTechs in the country. The 65% DMB Loan-to-deposit ratio gave banks an edge over FinTechs. Banks can in fact afford to lend for a longer period and at a lower interest rates.
Respondent 6	The CBN in October 2019 had raised the loan to deposit ratio of banks from 60% to 65% to enhance loans to the real sector. This incentive encouraged banks to give out more loans but discouraged FinTechs.
Respondent 7	The ability of commercial banks to lend more to customers at lower rates was stimulated by the 65% DMB Loan-to-deposit ratio, giving them competitive advantage over FinTech firms in the country.
Respondent 8	Last year, there was an increase in the size of gross credits by commercial banks customers. This has made the government to retain the minimum 65% loan deposit ratio. This move has motivated traditional bans to give out more loans at even lower rates.
Respondent 9	The CBN announced in a circular signed by Ahmed Abdullahi, the Director of Banking Supervision, on the 7 <sup>th</sup> of January this year, that banks' deposit ratio of 65% has been retained. This has encouraged commercial banks to give out more loans and

	put FinTechs at a disadvantage.
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**Question 28:**

- Talking about getting the needed support from the CBN, some respondents believe that the issues of fraud or cybercrimes will be minimised with the provision of a secured database system. But this will have negative impact on traditional banks, because with more trust and patronage for FinTech products, there will be decline for banks' products. I find it hard to comprehend that FinTech companies are getting the required support needed to grow. What is your opinion of that?

Respondent 1	The issue of fraud or cybercrimes has actually been minimised with the intervention of the CBN in the FinTech sector. The government has made effort to protect activities on the platforms not just because it desires to grow these firms, but to also protect the general public which is its basic duty.
Respondent 2	It has negative impact on traditional banks, because with more trust and patronage for FinTech products, it implies that there will be decline for banks' products. Most banks may see this move by the CBN has antagonistic to their growth.
Respondent 3	Giving FinTech companies the required support needed for them to grow is just the right thing to do. The CBN has provided a secured database system to enhance trust in the system. Traditional banks can diversify their products and take advantage of online services.
Respondent 4	Supporting FinTech companies is not bad but it may have negative impact on traditional banks. With more trust and patronage for FinTech services, there will definitely be a decline in the demand for banks' services. This may make

	banks reduce the services of their employees. In other words, supporting FinTech firms may make most bank workers to lose their jobs.
Respondent 5	Giving FinTech companies the required support needed for them to grow is inimical to banks growth. FinTechs have the ability to drive commercial banks from the industry. They are competitors not complements.
Respondent 6	Of course, the traditional banking system is already affected. The world has become digital and a global village. Every country will sooner or later catch up with the trend. The CBN has little choice here. Its cashless policy has already paved the way for FinTech growth.
Respondent 7	Competition is good for the industry. Supporting the digital firms is a great stride from the CBN. The world has become digital. This will affect traditional banks and make them wake up to the challenge.
Respondent 8	It is the reality we find ourselves. The CBN has to provide the needed support since the public has embraced FinTech and it is gradually becoming a larger part of our financial system. I don't see it as against banks' activities. Rather it is exposing banks to a new and better way of doing things.
Respondent 9	The CBN gave the sector the maximum support it needs to ensure that online transactions on these platforms are safe. The issues of fraud or cybercrimes has actually been minimised with the provision of a secured database system by the CBN. Supporting the sector is a good gesture. Commercial banks just have to diversify their products and invest in these online platforms.

## GENERAL CONCLUSION

### Question 29:

- What is the impact of the newly signed Finance Bill 2019 on FinTech and how will it increase financial inclusion?

Respondent 1	It has increased the cost of FinTech companies. It has accounted for the additional costs they charge. It has a negative impact on financial inclusion.
Respondent 2	From the little I know about the Bill, it has increased FinTechs' costs. This bill doesn't encourage financial inclusion.
Respondent 3	The introduction of the Finance Bill led to the increase in Value Added Tax rate, which in turn has increased taxpayers' financial burden. This will eventually make some FinTechs to leave the industry if they cannot cover their cost.
Respondent 4	The impact of the newly signed Finance Bill 2019 on FinTech is outrageous, particularly on start-ups. It will increase cost and decrease financial inclusion
Respondent 5	The Finance Bill of 2019 does not consider the impact of tax payment and its increases on FinTechs. It is a disincentive to potential investors who desire to venture into the FinTech industry. Consequently, the newly signed and implemented bill has a negative impact on FinTech through a reduction in financial inclusion
Respondent 6	Before the Bill, VAT rate was 5%. It was increased to 7.5% to enable the government generate additional revenues. It also included FinTechs as taxable companies, when majority of these companies are start-ups that need financial and policy



	assistance.
Respondent 7	The Finance Bill is nothing but a disincentive to digital companies. In the process of trying to generate more revenues through the Finance Bill, the government has indirectly hampered the activities of FinTech companies. With increase in taxes, most FinTechs will fade out of the industry soon.
Respondent 8	The Bill came as a surprise to many investors but there are economies of the world that depend on fiscal revenues. The government tried to tap from the benefit of this source. However, this bill will discourage financial inclusion of FinTechs.
Respondent 9	The 2019 Finance Bill was implemented on the 28 <sup>th</sup> of November that year by the House of Representatives. Its major aim was to enable the Federal Government to raise additional revenues to meet the 2020 budget targets. It has various provisions but the aspect that affects FinTech was the inclusion of digital firms as taxable companies. I don't think it will affect financial inclusion as these extra costs is almost insignificant for existing FinTechs, though might have a significant effect on start-ups.

Thank you, sir, for your time and cooperation. God bless you sir.



## Highly Structured (5 Respondents)

### Respondent p: Manager, e-Banking (Banking)

#### Question 1:

- What segment of the Nigerian market do you feel FinTech is seeing the greatest adoption growth?

Response:

The segments of the Nigerian market in which FinTech is seeing the greatest adoption growth are payment and money transfer. FinTechs have made these segments of the money market very easy.

#### Question 2:

- What do you think in terms of regulation? Is it good to keep the barriers down low or is it something we're going to focus on in terms of the FinTech industry?

Response:

Regulatory bodies should lower the barriers to encourage the influx of more start-ups FinTech companies. This will enhance efficiency, competition, innovation and create more jobs for the unemployed persons in the country.

#### Question 3:

- What is the reason for long queues in bank halls despite huge digital investments?

Response:

We will continue to have long queues in bank halls for some reasons: there is lack of trust for online transactions due to cybercrimes. There is lack of adequate POS terminals and there is the problem of ignorance. Most Nigerians, particularly those in rural areas, are unaware of the existence and importance of these online services.

#### Question 4:

- **How do you think banks can disrupt and reinvent themselves and turn digital into a positive asset in our new digital area?**

Response:

The world has become digital. Technology is reinventing every aspect of life. Banks have to remain relevant and to do this they have to turn digital. Commercial banks have to develop more digital products and offer solutions that are easy and convenient to consumers. This will enable them to survive the competition in the financial industry. The greatest strength of FinTech companies is the combination of digital technology and innovative delivery practices to give convenient financial services. Traditional banks have to step up their game in order to survive and grow. Banks can decide to either reinvent by collaborating with FinTech companies to enable us leverage on emerging technologies and sustain their market share, or even take the bold step to invest in the FinTech sector.

**Question 5:**

- Consumers/customers interviewed have complained of a high level of rejection in terms of loan, and some have been offered ridiculously low amount. What is the reason for that?

Response:

This is wrong. Banks are financially consolidated. There are a lot of small and medium scale enterprises in Nigeria and banks can grant them as much loans as they need, provided they are able to meet certain conditions.

**Question 6:**

- Do you think the 65% DMB Loan-to-deposit ratio will cripple the advantage of FinTech companies as banks can afford to lend for a longer period and at a lower interest rate?

Response:

Of course, banks have the advantage to grant more loans and at even lower rates than FinTechs. The 65% DMB Loan-to-deposit ratio will cripple the advantage of FinTech companies have over banks, which is the ability to offer loans without collaterals and are already having high customer attention and adoption.

**Question 7:**

- What is the impact of the newly signed Finance Bill 2019 on FinTech and how will it increase financial inclusion?

Response:

The introduction of the Bill led to VAT rate increase from 5% to 7.5% to enable the government to generate more revenues. The problem with this Bill is that it included FinTech firms as taxable companies. This is dangerous. Most of the FinTechs in the country are start-ups that need financial and policy assistance. This will have negative impact on financial inclusion as it will discourage potential investors in the FinTech sector.

**Question 8:**

- Bearing in mind that fraudsters come up with new tricks every day, are you also of the opinion that only by strict compliance to standards by financial institutions will address financial crimes in Nigeria?

Response:

Nigeria has been rated as the number one country in Africa with the highest level of financial crimes and fraudsters. That is not a good reputation. To combat this menace, there must be strict compliance to standards by financial institutions put in place by the CBN and other regulatory bodies to address financial crimes in Nigeria.

**Question 9:**

- I am aware that the start-up and sustainability of FinTech requires huge capital investment, something that a bank such as yours can afford. Either developing the bank's e-banking sector to an up-to-date status or investing into a standard Fintech company, heavy investments will have to be made. Has your bank tried weighing these options to see where it is more profitable, and which one will have more impact on customers?

Response:

I am aware of the fact that we have invested in developing our e-banking sector to an up-to-date status. This is to enable the bank efficiently offer POS and other online services almost timelessly. We have some digital products which customers can access online, and more are being invented. I believe the board must be weighing the options of investing in FinTech services. It must be more profitable and have more positive impact on customers for the bank to choose that option.

**Question 10:**

- Responses from my previous interviews resulted in different notions about consumer internet companies, like Google, Facebook and WhatsApp, which were ordinarily not threats to banks, but with the introduction of products like AliPay, Apple Pay and Google Pay, that are exploring the financial and payment space, they have become threat to banks. While a few have disagreed with the saying that FinTech companies have some competitive products, and a threat than these consumer internet companies, which are limited to just payment solutions, others agreed to it. What is your opinion on that?

Response:

Any company that produces substitutes to a bank product is considered a threat. So the introduction of products like AliPay, Apple Pay and Google Pay, that are exploring the financial and payment space, they have become threat to banks automatically. If a customer sees the need for the online payment solutions, he dismisses the need for a bank's product or service. So these FinTech services are threats to banks.

**Question 11:**

- According the NCC, as at April 2019, there were 173.6 million active telephone lines in Nigeria. This, compared to a total 72.9 million active bank accounts, according to Nigeria Inter-Bank Settlement System Plc. (NIBSS), tells the story in numbers. If the number disparity between bank accounts and telephony subscribers in Nigeria are anything to go by, will telcos not be one of the biggest threats to banks and not FinTech?

Response:

With the implementation of payment service banking, banks are facing serious threats from Telcos. Telcos, with the existence of 173.6 million active telephone lines in the country, are expected to reduce the customer base of banks in Nigeria. To make matter worst for banks, Telcos has threatened to withdraw USSD service to banks or at least should be paid for, but not free-of-charge. Since banks can't do without telecom services, Telcos has become a greater threat to banks than FinTechs. In all, banks are facing serious threats from both FinTechs and Telcos.

**Question 12:**

- As pointed out by various experts, do you also agree that the future of the financial sector will rely on collaborations and mergers between banks and FinTechs in order to stay ahead of changing times.

**Response:**

The truth is that the future of the financial sector actually depends, to a large extent, on the collaborations between banks and FinTechs, not in terms of physical mergers between banks and FinTechs, but in terms of collaboration to perform certain services efficiently while maintaining individual independence as separate entities. This is because it will be difficult to merge. In fact, the acquisition of FinTech start-ups by banks may lead to integration difficulties. Also, there will always be some amount of competition. Immediately FinTechs started playing in the financial space, they have made themselves threat to banks, and immediately banks started playing in the digital and online space, they have made themselves threat to FinTechs. This is the future of the financial sector. Both subsectors of the financial industry will continue to collaborate to perform some services and compete in some other areas.

**Question 13:**

- Do you think traditional financial players should embrace the rise of these FinTech companies by investing in these platforms and working in collaboration with them since competing against them will do banks more harm than good. Or do the banks need to develop more digital products and offer their solutions that are easy to access?

**Response:**

Like I said, there are areas traditional financial players should embrace the rise of these FinTech companies by investing in these platforms and working in collaboration with them, while there are areas they will need to compete with these digital companies. Competition will make both subsectors more innovative and efficient – technically and economically. FinTechs are already giving out loans, support payments and transfers. Banks can likewise develop more digital products and offer the public solutions that are easy to access, which has been the major advantage of FinTechs.

**Question 14:**

- Cost of maintaining ATM sites has been pointed out as an impediment to growth. Should banks outsource the entire ATM service to a FinTech with the capability to manage them

and run them efficiently? There is a strong case for outsourcing the service. Reports have it that the cost of ATM support contract is much less from FinTech companies compared to what NCR will charge. Won't outsourcing also mean that banks have more time on their hands to focus on providing better customer service?

Response:

I have always maintained that banks and FinTech companies can collaborate in some areas. Outsourcing ATM to FinTechs is one of such areas. The cost of maintaining is very high, especially after the CBN announced a review of fees on ATM, card maintenance and electronic transfers. The apex bank reduced cash withdrawal charges and removed Card Maintenance Fees on all cards linked to current accounts. This has reduced the income generated from ATM by banks. Banks should therefore outsource the entire ATM service to an efficient FinTech company that can manage it efficiently and profitably.

**Question 15:**

- Technology infrastructure has not been growing with the pace of adoption. While over 114 million Nigerians are on the internet as at January 2019, the infrastructure that powers the internet is still at a primitive level. NCC reports that broadband penetration climbed to 33 per cent in 2019, and was overwhelming dominated by mobile broadband. Reports have it that the ICT ministry largely paid no attention to fixing the many challenges facing fixed broadband which is more reliable and efficient. Is that an information you are aware of?

Response:

The major challenge facing broadband penetration in Nigeria is bureaucracy. It is responsible for the high cost of internet. Other challenges include multiple taxation, economic challenges, competition, theft and vandalism. Apart from the cost, increasing access to the internet also depends largely on the spread of broadband infrastructure. There is no improvement in the infrastructure that powers the internet. The ICT ministry is paying no attention to fixing the many challenges facing fixed broadband which is actually more reliable and efficient. According



to the Nigerian National Broadband Plan, 3G connectivity is supposed to spread across over 80% of the population by end of 2018 but this has not achieved.

**Question 16:**

- Going by the CBN's guideline, no reversal should exceed 24 hours no matter what the situation is, but this is hardly the reality. Visits to most banks' social media handles have shown that customers continue to wait days and even weeks before getting their issues resolved. Has this not impacted negatively on customer service?

Response:

People are weary of commercial banks ineptitude – you get debited without receiving cash through ATM. You expect it to be reverted as soon as possible. Sometimes it takes days or weeks. The CBN's guideline that no reversal should exceed 24 hours no matter what the situation is, is yet to be achieved particularly when it has to do with inter-bank transfer. There are always customers queue on banks' premises and some have to wait days before getting their issues resolved. This has impacted negatively on customer service. People are increasingly being discouraged to use banks' services due to their delay and ineptitude.

**Question 17:**

- Agent banking has not been so much of a success. They are currently face many business challenges which limit their viability, especially in regions where economic activity is minimal and mobile network infrastructure is absent. How can we improve the viability of agents' business and make it a priority if we are to succeed at widescale last mile delivery of financial services?

Response:

There are many business challenges limiting the viability of agent banking in Nigeria. To improve the viability of agents' business in the country, the CBN must endeavour to build public distrust, enlighten the public on the importance of agent banking, and provide more POS terminals. NCC needs to provide extended network facilities to cover remote areas and the Power Holding Company needs to provide constant power supply in these areas.

**Question 18:**

- Do you think that if commercial banks make use of agents in rural areas they will be able to cut down transaction cost, the agent banking programme will be more effective, they will be able to penetrate rural areas and the Vision 2020 of 80% and 95% in 2024 financial inclusion will be easily achieved?

Response:

The Vision 2020 of 80% and 95% target by 2024 can be achieved if banks can penetrate rural areas with more POS terminals. Like you said, they will also be able to cut down transaction cost and the agent banking programme will be more effective. But this is a real challenge and I honestly don't think these targets can be achieved. There must be more POS sites in rural areas, consistent power supply, enlightening of rural public and more bank agents.

**Question 19:**

- A Nigerian financial expert believes representatives of Nigerian banks are understandably being economical with the truth. His words, and I quote "I work with some of these banks and the whole truth is they are just afraid of technology and changing trends, they are scared stiff. As people are beginning to have alternatives to structured banking, the days of Nigerian banks as we know are numbered and they know it," he further said that a lot of these options include agency banking, and telecommunication companies among others. This expert reckons that one of Nigeria's biggest banks makes ₦4 billion (*\$11.96 million*) to ₦10 billion (*\$27.74 million*) daily from agency banking alone; way more than their structured banking operations. How true are these statements?

Response:

Fixing payments has been a crucial reason for the thriving tech industry in Nigeria. It is a problem that has been solved by FinTech companies. They have made it easier to transact online. And with commercial banks slow to adapt, FinTech companies are doing everything to take over the market. But there is no way commercial banks will be driven off the market. I don't think they are afraid of technology and changing trends. I disagree. Initially, they were probably considering the impact of technology on their company – their products and staff. Presently, banks are adapting technologies to ease their services. Telecommunication companies are becoming serious threats, but for agency banking, there is no threat in it. Banks are even

investing in it to reach out to their customers. Lastly, if a bank makes billions of naira daily from agency banking alone, which is way more than their structured banking operations, that is not a big problem at all. In fact, it is a plus to banks. Like I said before, the adaption of new technologies will do banks more good than harm. Those that will be seriously affected are the staff.

**Question 20:**

- Regulation Technology (RegTech) provides a key opportunity to manage the cost of regulatory compliance, as it grows in step with institutions overall data strategies. As much as I know, financial institutions' digital business models do not ensure the digitisation of the risk function, they do enable it because they drive the expansion of risk management. The need to match technology with regulatory requirements cannot be overemphasised. RegTech we know, uses new technologies such as machine learning and artificial intelligence to help financial institutions meet the challenges of regulatory monitoring, reporting, compliance and risk management, while driving down compliance-related costs and enabling a fully compliant experience for their customers. As said earlier, levels of regulation are on the rise for financial institutions. These can also encompass risk-in-real-time (RIRT) capabilities, which include know your customer (KYC), customer due diligence (CDD), enhanced due diligence (EDD), transaction surveillance and authentication, and anti-money laundering (AML) technologies. How much in use is RegTech in this sector, both for regulators and the institutions?

Response:

RegTech is a term which refers to a set of companies and solutions that use innovative technology and regulation to address regulatory requirements across industries in the country. RegTech is so much in use in Nigeria. The threats of financial fraud and identity theft have made RegTech come out with numerous initiatives to protect financial dealers and investors in the country. Its presence among regulators and institutions cannot be down played. As we all know, there are numerous regulations for financial institutions. RegTech initiatives have created a watch list which is a database of bank customers. FinTech companies are made to comply with these numerous initiatives by RegTech to promote KYC. Regulations such as face capturing, driver's license, Email verification, bank account, etc have been put in place by RegTech to

enhance KYC. Financial institutions have been complying with these regulations. These initiatives of RegTech are vital in transaction surveillance and authentication, and anti-money laundering technologies.

**Question 21:**

- Compliance, I understand, is very costly and significantly drains on resources. Can you rate the cost of adhering to regulations?

Response:

It is very expensive. It is very costly to adhere to regulations. Fintech companies operating in Nigeria must adhere to numerous regulations and pay a lot of fees. In fact, there are a lot of regulations which start-ups and existing companies must adhere to. For instance, we have the guidelines on mobile money services, guidelines on international money transfer, guidelines on international money remittance service, etc. Start-ups are required to pay over \$270,000 before obtaining licence. A foreign International Money Transfer Operator (IMTO) wishing to operate in this country must have a minimum share capital of \$1 million and a list of licensed agents. The IMTO must pay a non-refundable fee of ₦500,000 and with a minimum paid-up share capital of ₦2 billion. The list is almost endless. It is frustrating for these companies.

**Question 22:**

- Do the Regtech solutions used by central banks predominantly focus on digitization of existing processes alone or other innovative technologies such as Artificial Intelligence (AI), machine learning, big data analytics, Distributed Ledger Technology (DLT), biometrics, and cloud computing which can completely change the nature of supervision by introducing new and advanced monitoring techniques?

Response:

Regtech solutions used by the CBN does more than focusing on digitization of existing processes alone, it uses other innovative technologies such as Distributed Ledger Technology (DLT), Artificial Intelligence (AI), machine learning, biometrics, big data analytics and cloud computing. Regtech helps to screen potential customers against official sanctions and Enforcement Watchlists, PEP databases and large number of media sources for any negative report concerning the particular individual. It helps Money-Laundering Reporting Officers to go

through large amounts of data quickly in order to ensure they are in compliance with statutory regulations.

**Question 23:**

- In 2014, CBN in collaboration with the banks in Nigeria introduced a system where they assigned users BVNs which is a unique identification number associated with a user's physiological and behavioural attributes (fingerprints, signatures, and other information) that can be used for bank transactions across Nigeria. It not only aimed to protect customers from unauthorized access, identity theft and fraud but also identify blacklisted customers. But BVN has faced legal challenges by the National Identity Management Commission (NIMC). NIMC claimed that they had the sole rights for biometric registrations and verifications and contested the right of the CBN to register citizens using biometric information and to issue the BVN. An agreement was reached that requires harmonization of BVN database with the new National Identity Database (NIDB). Other qualified databases with biometric eKYC measures are also eligible for harmonization until December 1, 2018. Following that, from January 1, 2019, the use of the new National ID number – and not the BVN – will be mandatory. This is February 2020 and we are nowhere close to target. Don't you see this as a distraction to the achievement of the financial inclusion target?

Response:

The introduction of BVN in 2014 has turned things around positively. It reduced financial crimes drastically. The new National Identity Database (NIDB), which can also be used for bank transactions across Nigeria, is a right move. Nigeria as a nation needs a centralized data system. It will help provide a harmonized database system. However, I see the new National ID number as a distraction to the achievement of the financial inclusion target. This is the time all efforts should be towards achieving financial inclusion. I just hope the use of the new National ID number, in place of BVN, does not create loopholes in a system that is almost perfect in fighting financial crimes.

**Question 24:**

- Is there any other area that you feel that it'd be worth investigating from, we'll say, the financial technology, and FinTech area within Nigeria?

Response:

The payments and remittances subsector remains the most active and developed area of FinTech sector. FinTechs have led to a rise in the number of mobile and electronic payments. But one area worth investigating is the area of security trading and investment management. This area has been too passive. Worth investigation also is regulatory treatment of key technologies, the innovation climate in Nigeria and what the government is doing to support the FinTech sector.

**Question 25:**

- Thank you for all that valuable information, is there anything else you'd like to add before we end?

Response:

Yes, cryptocurrency-based businesses are currently prohibited by the CBN but there are cases of people been duped of their hard-earned money using these platforms. Despite the fact that the CBN has warned that virtual currencies are not legal tenders in Nigeria and that the dealers and investors have no legal protection, alot of persons are ignorant of this information.

- i. More awareness needs to be created. Criminals are taking advantage of the ignorance of the people who do not have access to information due to inadequate facilities and lack of power supply.
- ii. The government needs to work with the security agencies to fish out these criminals in the society.

Respondent 0: CEO, Broadband Infrastructure (FinTech user).

**Question 1:**

- What do you think are the challenges that FinTech companies have in Nigeria?

Response:

Their challenges are numerous. Fintech companies rely on data which is vulnerable to attack and misuse. These are insecurity of data, cybercrimes, too many regulations, huge license fees and lack of trust for online transactions.

**Question 2:**

- What has been your biggest challenge in using FinTech which you feel would not be an issue if you were dealing with a DMB?

Response:

My biggest challenge in using FinTech companies is the fear of insecurity of information. There is this lack of trust for online transactions due to the fact that information given by users could easily get into the hands of fraudsters. This is not the case when you are using traditional banks. They are safer.

**Question 3:**

- As a user, what matters to you most when it comes to dealing with FinTech?

Response:

What matters to me most when I am dealing with FinTech is the security of my information. Giving information about one's ATM cards online is very risky. You know, when you consider their efficiency and the convenience of getting what you want without going to the bank, you sometimes take the risk, especially when you have apps that you can rely on.

**Question 4:**

- Having this fear of using the various FinTech platforms due to the fact that your data are not secured or can easily get into the hands of fraudsters, how much trust do you have in the FinTech companies in handling your private data?

Response:

Rating from 1 to 10, I will say 7. That is, about 70% trust in the FinTech companies in handling my private data. I still nurse that 0.3 probability or 30% fear that my data could get into the hands of fraudsters anytime.

**Question 5:**

- What are the different products and services being offered by FinTech that you are aware of?

Response:

I might not patronize all their services, but I am aware that FinTech companies offer a range of products and services such as innovative payment gateways, crowdfunding, financial research, mobile lending, digital currency, insurance and wealth/investment management, and a host of others.

**Question 6:**

When there is the need, do you have easy access to loan and other required facilities from FinTech?

Response:

Yes, I do have easy access to FinTech services. Mobile lending is becoming very popular among Nigerians due to its easy access. The steps in obtaining loans from traditional banks are usually very stressful. I like patronizing FinTech companies just because of the ease of online payments and also the easy access to loans. Although these companies do not give large amount of loans, their processes are very easy. This is where traditional banks come in.

**Question 7:**



- What kind of awareness need to be created to encourage financial inclusion in the public?

Response:

The financial inclusion vision of the CBN is gradually becoming loud. 100% inclusion is impossible but at least a 95% will not be bad. The segments of the society that need to be captured are women and rural dwellers. To deepen financial inclusion and achieve the set targets, the CBN should therefore enlighten these sets of persons. There should be jingles to educate these persons, more POS sites in rural areas, market squares and incentives should be given to encourage them to bank.

**Question 8:**

- What are the possible ways that can be employed to tackle gender gap in the unbanked?

Response:

It is not going to be easy but can be achieved. The gap can be shrunk to a large extent. Empowering women will help. Most women do not open account because they can't not because they are not aware of its benefits. Enforcement of cashless society tenets will force women to go digital, online transactions should therefore be encouraged. The use of text messages to remind the people of their savings goals will encourage more savings. The use of TV programmes, like soap opera, can educate the people on the need for banking. Lastly, financial literacy programmes among women and girls, such as the use of accounts, need for online transactions, the importance of budget, how to plan and save, etc., will help to tackle gender gap in the unbanked public.

**Question 9:**

- Which do you think is better for FinTech growth and sustainability? To have a wider range of products or to concentrate on the few and then maximizing data security and efficient delivery on already existing services?

Response:

I think it is better for FinTech companies to have a wider range of products for their growth and sustainability. The production of different products and services helps to survive competition and

grow. The concentration on a few services is not a good idea. It could make a company irrelevant with time.

**Question 10:**

- Why do you think Agent Banking is not so popular among users?

Response:

I honestly think it is too early to judge. It was just introduced into the Nigerian society, but within this little period, it has become very popular among Nigerians. Apart from rural areas which need more POS sites, agent banking is achieving desired results already.

**Question 11:**

- What new technologies could radically affect the impact of the industry on the population?

Response:

There are new technologies could radically affect the impact of the industry on the population. There are new technologies like machine learning, Artificial Intelligence, robotic automation and Blockchain. Technology applications that can help customers through immediate feedback are needed. Text messages that remind people of their savings goals might help them save more, this is working in countries like Peru and Bolivia.

**Question 12:**

- Do you think you have enough awareness or education on how to primarily detect online fraud?

Response:

Fraudsters are employing different strategies and applications to defraud their victims. It becomes really difficult for an individual to have enough awareness or education on how to detect online fraud or a genuine platform. Some of the platforms have been hacked by criminals. So I will say 'No'. I don't have enough awareness or education on how to primarily detect online fraud.

**Question 13:**

- Do you think that if commercial banks make use of agents in rural areas they will be able to cut down transaction cost, the agent banking programme will be more

effective, they will be able to penetrate rural areas and the Vision 2020 of 80% and 95% in 2024 financial inclusion will be easily achieved?

Response:

Yes of course. I said that earlier. With more bank agents in rural areas, commercial banks can penetrate rural areas. The Vision 2020 of 80% and 95% target by 2024 can therefore be achieved if banks can supply more POS terminals in rural areas. It will help to cut down transaction cost and the agent banking programme will be more effective. I think believe these inclusion targets of the CBN can be achieved.

**Question 14:**

Thank you for your time, is there any other thing worth knowing which we have not covered?

Response:

No, I don't think there is any other thing worth knowing which we have not covered. We have obviously covered everything in both interview sessions.

Thank you ma for your time. You have been indeed wonderful. Enjoy your weekend ma.

Respondent  $\pi$ - Government Administrative Assistant (Regulation)

**Part A: Financial Inclusion**

**Question 1:**

- What do you feel is the biggest issue that FinTech has in Nigeria?

Response:

The biggest issue that FinTech has in Nigeria is entry barrier. The various fees to pay for licenses have discouraged alot of potential investors. However, there are issues like lack of trust and fraud.

**Question 2:**

- What kind of awareness needs to be created to encourage financial inclusion?

Response:

The different publications by the CBN has shown that one major reasons for the large segment of unbanked population is lack of banking facilities in rural areas and lack of awareness. To encourage financial inclusion, those in rural areas have to be sensitized. They need to understand the importance of banking. It is unfortunate that a lot of these persons still underplay the need for banking.

**Question 3:**

- Is the cost of license as set by CBN an impediment to financial inclusion?

Response:

Of course, the cost of license, as set by CBN, is an impediment to financial inclusion. It has discouraged a lot of investors from investing in the FinTech sector. However, these various license fees and costs serve as entry barriers and help to protect the industry.

**Question 4:**

- In what areas should regulatory bodies and government focus their research and development to enhance financial inclusion?

Response:

I think the government and regulatory bodies should focus their research and development on the causes of the large unbanked public. It could be more than lack of awareness as general believed. It might be due to the high level of unemployment and poverty in the country. I believe that the creation of jobs and empowerment programmes for youths and women will help to bridge the gap and reduce the unbanked public.

**Question 5:**

- What are the possible ways that can be employed to tackle gender gap in the unbanked?

Response:

Like just said, the empowerment of women and/or creation of jobs for women will help to tackle gender gap in the unbanked public. Women should also be sensitised on the importance of banking and using agent banks or POS terminals.

**Part B: Legislation**

**Question 6:**

- The FinTech stakeholders have complained about the new finance bill, saying it is a major setback for them and will adversely affect their profitability and subsequently, operability. Has the government given a re-consideration to that?

Response:

Yes, FinTech companies have made series of complaints since the introduction of the Bill. The Bill is to enable the government generate more fiscal revenue in a time when the over dependence on crude revenue is too risky. This Bill included FinTech firms as taxable companies and increased VAT rate increase from 5% to 7.5%. This didn't go down well with the CEOs of FinTech companies. Honestly, the government has not given consideration to this. In most other countries, these companies are taxable. Nigeria shouldn't be different. The only reason they were initially excluded is to create incentive to entice investors. I don't think the new finance bill will significantly affect the profitability and operability of FinTech companies.

**Question 7:**

- One reason for the increase in transaction charges is the inclusion of FinTech companies as taxable companies. Has the government given a consideration to this as it concerns their target of financial inclusion?

Response:

I disagree with this line of argument. The inclusion of FinTech companies as taxable companies does not deprive them from operating at competitive level and charge normal rates. The increase in transaction charges will not last long. The competition in the industry will force these charges down in the longrun.

**Question 8:**

- From findings, we see that cryptocurrency plays a significant role in accelerating financial inclusion and empowering and transforming the lives of billions. What is the future of cryptocurrency in Nigeria as regards government/regulators approvals acceptance?

Response:

The CBN has made it known to the Ministry of Finance, banks and the general public that cryptocurrency is illegal in Nigeria. It may have played significant role in accelerating financial

inclusion, empowering and transforming the lives of billions, it does not take the fact away that it still remains very risky. It is an easy way to defraud innocent people of their hard earned money.

### **Part C: Support**

#### **Question 9:**

- Is there any incentive from the government for the players that are making things happen? An example of such incentives I have come across during this study is The Monetary Authority of Singapore (MAS) which announced \$27million Artificial Intelligence and Data Analytics (AIDA) Grant under the Financial Sector Technology and Innovation (FSTI) Scheme which will focus on the Financial Institution Track and the Research Track to co-fund up to 50% of project costs for Singapore-based financial institutions which leverage AI and data analytics techniques to generate insights, formulate strategy, and assist in their decision making.

Response:

Yes, there are incentives from the government for the players that are making things happen in the country. This is to encourage innovation and dynamism in the FinTech industry, encourage creativity and reduce risk. The government is working with industry regulators to protect financial services against the use of FinTEch. The government and regulators such as the CBN, NIDB, the NIPC and FIRS, have developed vital incentives to encourage potential investors into the Nigerian economy as a whole and FinTech sector in particular. This is necessary due to the increasing adoption of innovations such as big data, AI, etc. The CBN strongly believes that FinTech would help to accelerate the process of financial inclusion.

#### **Question 10:**

- Is there anything like resources from the public source that focuses on providing incentives that encourage private sector investment such as tax holidays, guaranteed investment repatriation, etc?

Response:

Before now, FinTech companies were not included as taxable companies. However, with the introduction of the new Financial Bill, things have changed. They are now included as taxable. But to your question, yes, there are public funds for FinTech companies. Apart from incentives like tax credits, tax cut, tax holidays, capital allowances and guaranteed investment repatriation

given to encourage private sector investment generally, FinTech companies can access government funds through schemes such as the Youth Entrepreneurship and Innovation (YEI) Trust Fund, National Collateral Registry (NCR) to assist small and medium scale enterprises to access funds, the Youth Entrepreneurship Support (YES) programme, Shell Livewire, GroFinFUND, African Development Foundation, BOI funding projects, export expansion grants and TEF entrepreneurship programme.

**Question 11:**

- How can we encourage collaboration or healthy competition and balancing of different interest rates between DMB and FinTech companies?

Response:

FinTech companies may be competitors because of certain services they render, but collaboration has always existed between both sectors. DMBs are using FinTechs for online payment services, managerial purpose and risk management. The government can encourage collaboration or healthy competition between both sectors by defining their boundaries. Regulatory bodies can be of great help here. The reduction in lending rates was seen as antagonistic by FinTech companies. The CBN has to determine a competitive rate of interest that will be okay for both sectors and at the same time does not discourage customers.

**Question 12:**

- What support is the government giving to development of local technology so as nurture in-house talents that will produce cost effective products?

Response:

The Federal Government is supporting the development of local technology. We have the local content policy which encourages the development of local technology. There are other policies and programmes that support the development local resources. The Bank of Industry (BOI) has numerous packages to support innovation. This benefits the FinTech industry. There are numerous supports for the development of local technology. Like i mentioned before, we have the Youth Entrepreneurship Support (YES) programme, African Development Foundation, Shell Livewire, GroFinFUND, BOI funding projects and TEF entrepreneurship programme. All these support programmes encourage local innovation.

**Part D: Funding**

**Question 13:**

- In 2018, after visiting tech start-ups and hubs around the country, including the well-known Silicon Valley, the Federal Government had talks with the AfDB to provide \$500 million innovation fund for technology and creative sectors. However, till date nothing has been done. Are you aware of this?

Response:

Of course, I am aware of it. The Vice President, Prof. Yemi Osibanjo, made the comment to the public that the Federal Government is working with the AfDB to generate \$500 million innovation fund for technology and creative sectors. The fund is actually aimed at increasing the competitiveness of the country's ICT industry. However, this has not been achieved, but the government is seriously working on it. The delay is due to challenges encountered by both parties as to how it will be repaid.

**Question 14:**

- When asked about why investors are not forth coming (only 3 out of 10 Nigerian Forbes billionaires have invested in technology, unlike the US where almost all the billionaires made it big in the Silicon Valley), the response we got was that the high level of risk and uncertainty is a reason why potential investors are sceptical to invest in the FinTech sector. Example is the Lagos State Government ban on Okada which affected investors such as Gokada, ORide, and 1st Ride. What can be done to make the industry attractive for investors? How can that be solved?

Response:

The reason why very few Nigerian billionaires have invested in technology, can be attributed to lack adequate knowledge on how it works. The few that understands it and sees the huge revenue in it, invest in it. The industry can be made attractive for investors if there are juicy incentives like few regulations, reduced license fees, tax cut, tax holiday, constant electricity and security. Also, the problems of high risk level and uncertainty can be solved by ensuring that information are secured and consistent use of BVN for online transactions where possible to detect false identity and fraud. However, uncertainty in government policy is one thing that even the



government cannot predict. Examples are the Lagos State Government ban on Okada which affected investors such as 1st Ride, Gokada and ORide, as you already know.

## **Part E: Infrastructure**

### **Question 15:**

- As part of the United Nation's 2030 Agenda for Sustainable Development, financial inclusion directly or indirectly features in 8 out of the 17 goals. Also, in achieving the financial inclusion target as set by the CBN, development and sustainability of FinTech is crucial, and one factor that has been very common among both users and providers is infrastructure. Is there any plan in place by the government to overcome this?

Response:

Yes, there are a lot of plans in place by the government. A number of important reforms to ensure adequate infrastructure has been put in place in recent years. The power sector is undergoing tremendous reforms and restructuring that will boost the level of performance in the country, the liberalization in the ICT sector has led to widespread, a vibrant fixed line telephony circuit, low cost mobile services and influx of private investment. A strong domestic air transport sector has emerged and the ports sector is exploring pragmatic reforms and terminal concessions to attract private investment.

### **Question 16:**

- FinTech stakeholders have mentioned that non utilization of NCR (National collateral Registry) is caused by among other things, lack of infrastructure (power supply). What is the government's plan in combating this issue?

Response:

The National Collateral Registry is an initiative of the CBN to improve access to finance. It was stated clearly by the CBN that it is to assist micro, small and medium-scale enterprises.

Like FinTech stakeholders have mentioned, non utilization of NCR is caused majorly by inconsistent power supply. To overcome power shortage problem, the government privatised the power sector. This seems not to make any significant difference, apart from reducing government expenditure. The perennial challenges evident in the pre-privatisation era still exist in the post-privatisation era. The Nigerian transmission and distribution network is outdated.

There are effort to update this network. There are also plans for alternative power supply because it is obvious to the government that consumption level is increasing at geometric rate. This is a long term plan.

**Question 17:**

- Still on infrastructure, it's been gathered that Nigeria lacks a national backbone network through which high-speed internet can be extended across the country. How is the government able to assist in this matter?

Response:

The government is doing a lot to create a national backbone network through which high-speed internet that will extend across the country. Like I said earlier, there is a vibrant fixed line telephony circuit and major private investments in the development of a national fiber-optic backbone. The government has national broadband plan that was supposed to span from 2013 to 2018, but has been extended to 2020. This is because it has realised that internet and broadband have been globally acknowledged as the foundation for the transformation to a knowledge – based economy.

**Question 18:**

Thank you for your time, is there any other thing worth knowing which we have not covered?

Response:

We should note that the effort of the government notwithstanding, the inadequacy of infrastructure still remains a major obstacle to sustained economic growth in Nigeria. It should be noted that overcoming this constraint requires huge annual investment. The AfDB has made infrastructure development a cornerstone in its development agenda with member countries in the region. It is currently working with the Nigerian government to overcome this problem or at least mitigate the impact by having a minimum level of infrastructure. The government is making effort to extend broadband. It has recognised the fact that broadband infrastructure is an enabler for economic growth in a digital economy. Broadband has the potential of enabling the entire new industries and enhancing efficiency in existing industries.

Respondent β- Deputy Director (Regulation)

**Question 1:**

- What do you feel is the biggest issue that FinTech has in Nigeria?

Response:

The biggest issue that FinTech has in Nigeria is lack of public trust. The sector is infested with financial crimes, fraud and cybercrime. These problems have reduced public trust in the sector. In order to enhance public trust in the sector, the CBN has developed a set of special guidelines to serve as mechanism to check this problem. This was realised by the assemblage of experienced team with members that are exceptional when it comes to FinTech operations and cutting edge technology. There are various regulatory bodies to ensure that FinTech companies have 100% compliance with these special regulations.

**Question 2:**

- How can FinTech companies enhance trust between FinTech companies and users?

Response:

This is simple. We have always known that enhancing trust between FinTech companies and users has to do with creating a secured database system. People are still scared of online transactions due to the incidence of fraud. On the other hand, FinTech companies are scared of giving out loans to the public due to the possibility of giving false information. With the availability of the harmonised database there will be trust because it becomes completely impossible to falsify your identity.

**Question 3:**

- What kind of awareness need to be created to encourage financial inclusion?

Response:

Financial inclusion is one programme we have been rigorously pursuing as an institution. We believe it is possible to achieve our set targets because it has been achieved in North America and Europe. To achieve it, the CBN has introduced FinTech companies into its payment system. This will help to deepen financial inclusion in the country. But it will not be possible if FinTech companies do not comply with the CBN guidelines. We are also encouraging agent banking and

providing more POS terminals so as to cover remote regions of the country. We have a road map to achieve our financial inclusion targets. It includes youths, women, rural areas and northern part of the country. We targeted a total of 16.5 million adult Nigerians by the end of 2020. We have discussed with banks to sensitize these groups of persons on the need for agent banking and other financial inclusion programmes. There are alot we are doing and still to be done. For instance, the CBN is working with organizations like SANEF and EFINA to support the activities of financial services agents. This will help to achieve vision 2020 of 80% inclusion.

**Question 4:**

- Is the cost of license as set by CBN an impediment to financial inclusion?

Response:

It is an impediment to some extent. The cost of license has deprived some persons from taking advantage of the sector to swindle Nigerians. This cost serves as barrier to entry. It helps to ensure that only those who are financially buoyant harness the potentials of the Nigerian market. The Central Bank issued 15 super-agents licenses and 3 payment service bank licenses to telecommunications and FinTech companies just to build a financially inclusive economy. More licenses are still been issued to support improved payment system and deepening financial inclusion in the financial sector. Like I told you guys before, over \$400 million have been invested in the FinTech sector just to support effective payment services in the country.

**Question 5:**

- How are FinTechs expected to sustain operations with low transaction charges while still paying a high fee for license?

Response:

The CEOs of FinTech companies have been calling our office ever since we reviewed transaction charges. The CBN has the interest of all at heart but the consumer is our primary target. Banks have been complaining also after we reviewed the charges on ATM and other services. Talking about FinTechs, they will definitely make profit and sustain their operations. They have reasonable market share and it is still increasing. And with the different products they

are offering to the market, they will not only be able to sustain their operations with low transaction charges, but continue to make profits.

**Question 6:**

- In what areas should regulatory bodies and government focus their research and development to enhance financial inclusion?

Response:

Enhancing financial inclusion in Nigeria requires a lot. Like I said before, regulatory bodies and government have their roles to play. Government needs to provide electricity and good roads to rural areas. NCC needs to provide network services in these areas and the CBN needs to provide more POS terminals in these remote areas. To enhance financial inclusion, regulatory bodies and government should focus their research and development majorly on reducing rural gap and gender gap.

**Question 7:**

- How can the Apex bank help in terms of infrastructure building?

Response:

In line with the 2012 National Financial Inclusion Strategy (NFIS) of the CBN, the apex bank has been doing all possible to build infrastructure, since lack of infrastructure are barriers to financial inclusion. There are measures to build a robust payment infrastructure and expansion of agent locations across the country. Like i said earlier, we are providing more POS terminals and developing more bank agents. We are working with state government to ensure that electricity supply gets to rural areas. We are providing financial assistance/loans to construct roads to these remote areas.

**Question 8:**

- The high level of risk and uncertainty is a reason why potential investors are sceptical to invest in the FinTech sector. What can be done to make the industry attractive for investors?

Response:

The high level of risk and uncertainty in the FinTech sector is due to the high level of cybercrime and financial fraud in the system. Potential investors are sceptical to invest in the sector for just this reason. The introduction of BVN has created some amount of trust in the system but not enough. The harmonised database system will help create more trust and attract potential investors – both domestic and foreign. This will be supported by other incentives like tax cut, tax holiday, security, constant electricity, etc.

**Question 9:**

- What are the possible ways that can be employed to tackle gender gap in the unbanked?

Response:

Financial inclusion is improving, but women still lag behind. Only about 30% women, compared to over 55% men, have accounts in Nigeria. Enlightening the women will go a long way. Expanding the agent network or the provision of POS terminals close to markets will also help since most of the women are traders. Encouraging mobile transactions, digitizing routine cash payments, strengthen consumer protection, the use of incentives and giving out of loans to businesses with women as targets, are all ways we are considering to capture the unbanked public, particularly women.

**Question 10:**

- Which do you think it is better for FinTech growth and sustainability? To have a wider range of products or concentrating on the few and then maximizing data security and efficient delivery on already existing services?

Response:

When there is competition, the best way to survive is to grow. Stagnancy could mean a natural death. Consequently, for FinTech growth and sustainability, they should have a wider range of products which must be delivered efficiently. The truth is that traditional banks are investing in digital services to survive the competition from Telcos and FinTechs.

**Question 11:**

- How is the CBN tackling transaction failure and unstable network that affects the stability of some FinTech services?

Response:

For the problem of transaction failure, it is unfortunate we still experience it. Banks and FinTEch companies have been mandated by the CBN to upgrade their network system. This was in a communiqué issued last month to financial institutions. While for the problem of unstable network, we are working with NCC to boost telecom and internet services across the country. Unstable network has affected the stability of some FinTech services to a large extent.

**Question 12:**

- We agree that cryptocurrency plays a significant role in accelerating financial inclusion and empowering and transforming the lives of billions. What is the future of cryptocurrency in Nigeria as regards government/regulators approvals acceptance?

Response:

Cryptocurrency has no future in Nigeria. The CBN still maintains its stand against cryptocurrency. It has been published that digital currencies are not legal tender. The usage of bitcoin by Nigerians is not protected by law. This led to the setting up of a committee to guide against its activities and usage. The committee developed a FinTech roadmap for the Nigerian Capital Market and to inform the SEC on approaches to innovation within the Financial Services sector. It was made very explicit that cryptocurrency is not covered by the Nigerian law.

**Question 13:**

- Is there any plan to increase the functions of agent banks as they are the face of financial institutions in the rural areas?

Response:

The idea of agent banking was born out of the desire to achieve the vision 2020 goal of 80% financial inclusion and reduction in poverty. However, there is no plan to increase the functions of these agents other than remittances/payments and deposit of cash. Due to insecurity, the

functions of agents are limited. It is not safe for them to handle huge cash or carry out other cash – related functions like provision of loans. Rural dwellers must find their ways to cities where traditional banks are situated for other services other than withdrawal and deposit.

**Question 14:**

- Is there anything like resources from the public source that focuses on providing incentives that encourage private sector investment such as tax holidays, guaranteed investment repatriation, etc?

Response:

Over the years, the CBN and other regulatory bodies such as the NIPC, NIDB, FIRS, etc have developed strategies and measures in form of incentives to encourage the influx of investment. There is no pool of resources from the public source that focuses on providing incentives to encourage private sector investment, but there is the availability and provision of loans which must be paid back within stipulated time. There are other numerous incentives to create favourable investment climate in Nigeria, such as tax cut, tax holidays, double taxation relief, tax credits, guaranteed investment repatriation, capital allowances, export expansion grants encourage private sector investment in the production of exports.

**Question 15:**

- The need for a centralized and harmonized database cannot be overemphasized. How far are we away from a successful harmonization?

Response:

Nigeria as a nation is suffering from poor data system. The harmonized database is therefore a welcome development. A lot has been achieved already on that. The target of achieving it early this year couldn't be achieved, but that is not to say we are not working. The CBN is working with the National Identity Management Commission (NIMC) to realise this. A special committee was set up by both institutions for this sole purpose. They have done alot. The committee will give an update this June. Meanwhile the use BVN is still playing the role of securing transactions in the financial sector.

**Question 16:**



- How can we encourage collaboration or healthy competition and balancing of different interest rates between DMB and FinTech companies?

Response:

FinTech companies are companies that render financial and other services that are based on technology-enabled innovations. The activities of FinTech companies in the country can be classified into four. These are financing, payment and infrastructure, data security and monetization, operations and risk management. It is a free economy. Companies in the financial sector are free to participate on any financial space. I think there can be some amount of collaboration between DMBs and FinTech companies in Nigeria. Banks can outsource some of activities to FinTech companies like ATM operation. But in all there will always be completion. FinTechs invest in financial products. They provide financial services like payments and others. They have also improved access and convenience in areas where traditional DMBs are not available. They have already crossed the boundary. Banks are already investing in digital products. The CBN has laid down procedures and guidelines to check these activities to ensure the competition is healthy.

**Question 17:**

- When asked about why investors are not forth coming (only 3 out of 10 Nigerian Forbes billionaires have invested in technology, unlike the US where almost all the billionaires made it big in the Silicon Valley), the response we got was that the high level of risk and uncertainty is a reason why potential investors are sceptical to invest in the FinTech sector. How can that be solved?

Response:

Apart from the fact that most domestic investors are not technologically inclined and need to be educated on how it works, the foreign investors do see the market in Nigeria. They are only scared of the high level of risk and uncertainty. Potential investors are sceptical to invest in the FinTech sector, like any other sector within the shore of Nigeria because of these problems: lack of constant power supply, lack of security, high level of risk and uncertainty. To overcome this, the government needs to provide maximum security for lives and property. There is the urgent need for constant power supply to attract both domestic and foreign investots.

**Question 18:**

- Do you agree that in order to get the adequate support from CBN, regulations should not be fixed and there is the need for regular review to get the best?

Response:

This is one problem the CBN has come to realize. There are too many regulations governing the activities of FinTech operations. This comes with high cost and maintaining these regulations become difficult. Some of the guidelines are interwoven and interlaced. Yes, we know that in order for banks and FinTechs to get the adequate support from CBN, regulations should not be fixed and should be regularly reviewed to get the best. We are always doing that. At every moment we want the best possible policy for the system. We are constantly working with other regulatory bodies to achieve this.

**Question 19:**

- With the infrastructural defects, how does the apex bank plan to achieve the target of deploying over 500,000 POS terminals by end of 2020.

Response:

This is a real challenge beyond the CBN. The apex bank has given banks the directive to produce more bank agents. Achieving the number is not the problem, we are already very close to it. The real challenge is the infrastructural defects in the country, particularly in rural areas. Like I said, it is beyond the apex bank because the provision of good roads, security, network facilities and constant power supply are beyond the CBN as an institution.

**Question 20:**

- Do technological hubs that could render help exist around?

Response:

A tech hub is a physical space – a city, a region or even an office – which has developed to help digital or technology startup companies succeed. It is therefore a business accelerator and startup incubator. For years, Silicon Valley has accelerated the pace and development of innovation and entrepreneurship globally. This inspired various hubs to be set up. We have some in Nigeria like

Blue Hub, KAD ICT Hub, StoneBricks Hub, Enspire, StartPreneur, nHub, etc. These hubs have developed sandboxes, which enable live testing of innovative products by FinTech companies before being offered to the public or market.

**Question 21:**

- Technology infrastructure has not been growing with the pace of adoption. While over 114 million Nigerians are on the internet as at January 2019, the infrastructure that powers the internet is still at a primitive level. NCC reports that broadband penetration climbed to 33 per cent in 2019, and was overwhelming dominated by mobile broadband. Reports have it that the ICT ministry largely paid no attention to fixing the many challenges facing fixed broadband which is more reliable and efficient. Is that an information you are aware of?

Response:

With growing mobile broadband internet in Nigeria, supported by the increased use of smart phones and other mobile devices to access mobile broadband, there is the need for increase internet penetration through fixed broadband access. Some of the challenges facing fixed broadband and limiting its penetration in Nigeria are poor electricity supply, pricing or high cost of deploying broadband infrastructure, the huge amount paid to pass a specific route or way either through grounds or property belonging to another person, the distance from the base station to users in rural areas, etc. These are serious problems. Saying that the ICT ministry is paying no attention to fixing these challenges may be false. Overcoming these challenges requires huge investment from the government.

**Question 22:**

- What is happening to areas such as insurance and financial management? Do they have a bright future in Nigeria?

Response:

Yes of course, these areas have a bright future in Nigeria. With the necessary policy and regulations, FinTech companies will venture into insurance and financial management like traditional banks. The scope of FinTech is very broad. For now, we have to take it slow. These

areas are very delicate. Policies and the right technological hubs must be in place before encouraging such move.

**Question 23:**

- Is one of the reasons for impeded growth not distribution? There are over 77 technology hubs in Nigeria with about 12 new ones scheduled for launch before the end of 2019. With 36 hubs, Lagos has the largest number of hubs and Abuja is second with 13. States like Enugu has about 5 hubs, Rivers 5; Kwara has two; Delta 3; Abia 2; Cross River 2; Ondo 3; Kano 2; Oyo 2; Ogun 3, among others. What is the reason for the absence in certain part of the country?

Response:

The absence of technology hubs in some states may be a reason for impeded growth. Tech hubs are not evenly distributed across the states of the country and the reason is understandable. The reason for few or the absence in certain parts of the country is due to their small market sizes and reduced prominence in the Nigerian economy. Lagos has a lot of tech hubs because of its industrial existence. It is Facebook's biggest market in Africa, a reason why Facebook launched its first African hub in Lagos.

Thank you for your time.

Respondent  $\gamma$ : CEO, Payments (Incumbents).

**Question 1:**

- What do you feel is the biggest issue that FinTech has in Nigeria?

Response:

The biggest issue that FinTech has in this country is cybercrime. There are fraudsters who take advantage of this online platform to dupe innocent Nigerians. This has led to lack of trust for FinTech operations.

**Question 2:**

- How can FinTech companies enhance trust between FinTech companies and users?

Response:

FinTech business depends on trust. Therefore enhancing trust is a serious business for these companies if they must stay in the market. FinTech companies can enhance trust between them and users by enhancing their integrity, ensuring that data are secured and getting their branding right from the start, associate with established brands that are well known, invest in security and compliance. They can also craft a great customer experience. A pleasing customer experience will always make them sticky to your brand.

**Question 3:**

- What kind of awareness need to be created to encourage financial inclusion?

Response:

The kind awareness needed to encourage financial inclusion is financial awareness programme. Knowledge is the key. The keenness to acquire more financial awareness will encourage inclusion. Proper money management and the ability to control one's spending and budget will create the crave to be financially enlightened. Rural populace need to be educated on the need to patronise POS terminals.

**Question 4:**

- Is the cost of license as set by CBN an impediment to financial inclusion?

Response:

It is an impediment to financial inclusion. The cost of setting up a FinTech company in Nigeria is very exorbitant. The high cost of license has discouraged so many potential investors. More licenses need to be given to promote financial inclusion or at least accelerate the process. The capital requirement for the licenses of FinTech companies imposes an impediment for start-ups. While the license fees cost between just ₦50,000 to ₦2 million, two licenses have capital requirements of ₦3 billion and ₦5 billion. That is huge.

**Question 5:**

- In what areas should regulatory bodies and government focus their research and development to enhance financial inclusion?

Response:

The CBN and other regulatory bodies have been clamouring for financial inclusion. It will be beneficial to them and to us as FinTech companies. The areas that government and regulatory

bodies should focus their research and development to enhance financial inclusion include the provision of more POS terminals, bridging the rural and gender gaps.

**Question 6:**

- How can the Apex bank help in terms of infrastructure building?

Response:

The CBN is known for infrastructure building. The lack of infrastructure is a serious barrier to financial inclusion programme. The CBN has supported InfraCo Plc with ₦15 trillion as part of its effort to build infrastructure. InfraCo Plc is a world class infrastructure development company. In March, 2020, the CBN had a roundtable discussion with financial institutions to raise another ₦1.5 trillion as part of its effort to build infrastructure such as roads, power sector and port facilities.

**Question 7:**

- The high level of risk and uncertainty is a reason why potential investors are sceptical to invest in the FinTech sector. What can be done to make the industry attractive for investors?

Response:

One of the numerous reasons why potential investors are sceptical to invest in the Nigerian FinTech sector is the high level of risk and uncertainty. The threat to cybersecurity is now associated with the use of sophisticated technologies to exploit the vulnerabilities of computer systems and bypass access or hack into computer servers for the purpose of carrying out cyber frauds. According to the recommendation of the CBN, FinTech companies should focus on preventing cybercrimes or mitigating its impact through the deployment of potent cybersecurity programmes. The CBN on its part should develop risk-based cybersecurity framework and guidelines for financial institutions in general to compel these institutions to comply with these guidelines.

**Question 8:**

- What are the possible ways that can be employed to tackle gender gap in the unbanked?

Response:

The disparity in terms of financial inclusion between men and women is so alarming that one keeps wondering if women are active population in the country. To tackle gender gap in the unbanked sector, there is the need to empower women financially, educate them on the need to have bank accounts, encouraging mobile transactions among women, provide more POS terminals and provision of incentives to entice them to open accounts.

**Question 9:**

- Which do you think it is better for FinTech growth and sustainability? To have a wider range of products or concentrating on the few and then maximizing data security and efficient delivery on already existing services?

Response:

For FinTech growth and sustainability, they should have a wider range of products. Satisfying a larger part of the market with different products is a good strategy for growth and sustainability. Concentrating on a few products is very risky. Similar services may be provided by traditional banks thereby reducing the relevance of FinTech companies.

**Question 10:**

- Some users have termed the loan process as frustrating. What are the steps that are responsible for that and how can it be eased?

Response:

This is not true. There are some lending platforms in Nigeria. They offer quick, easy and cheap loans with no collateral. Unlike the traditional banks, they offer loans with low interest rates, no paper work and no guarantors. Although FinTech give out cheap loans, some of the lending platforms are Renmoney, Aella Credit, Paylater, etc. If you talk about inability to give reasonable loans, I will agree with you. But having a frustrating loan process is definitely out of it.

**Question 11:**

- Is availability of funds also an impediment to loan approvals?

Response:

The availability of funds cannot be an impediment to loan approvals. In fact, it is the lack of adequate funds that is the impediment to loan approvals. Some customers are complaining that FinTEch companies cannot afford to give reasonable loans. Apart from lack of sufficient funds, there is the issue of lack of trust and false identity which make FinTech companies sceptical to

give out huge loans. However, the proliferation of start-ups has led to the influx of funds. One local investment fund is the Lagos Angel Network. There is another foreign one, Accion Venture Lab, it is a US-based non-profit investment fund.

**Question 12:**

- Is the sector ready for the impact of ‘Internet of Things’ that seem to be leading to explosive growth in connected devices and generating trillions of new data sources and likely push data demand to zettabytes per year.

Response:

The ‘Internet of Things’ is a system of interrelated computing devices with unique identifiers and the ability to transfer data over a network without the medium of human or computer. The impact of ‘Internet of Things’ is actually leading to explosive growth in connected devices and generating trillions of new data sources. In the nearest future, it will push data demand to zettabytes per year. The FinTech sector in Nigeria is ready but I don’t think the government is. The sector has quality services, quality facilities and experienced staff, but there are problems like inadequate infrastructure, unfriendly government policies and unfriendly environment which the government must take care of.

**Question 13:**

- Since we know that advert plays an important role in creating awareness among consumers about mobile financial service, how well has that been done and what are the impediments in reaching out or educating the public on such matter?

Response:

Advert can help educate the general public about mobile financial services and strengthening the FinTech industry in Nigeria. Most FinTech companies are already harnessing the opportunities in advertising sector. Adverts have significant impact on urban consumers, but not same on rural consumers. To enhance financial inclusion, adverts should be able to persuade the youths, women and other unbanked groups in rural areas. However, there are certain impediments in reaching out to these unbanked groups. There is the problem of lack of electricity, illiteracy, rural intricacy and distance, high level of poverty resulting to inability to purchase phone, etc. Advertisement tends to have very little or no impact in creating awareness among rural unbanked groups about mobile financial service



**Question 14:**

- Are there new technologies that are out of reach?

Response:

No, there are no new technologies that are out of reach. We have new technologies that are improving the FinTech business, but these technologies are not out of reach. Innovators and vendors always bring them to our reach since they want to sell their products. Technological hubs are also very helpful in this aspect. Artificial Intelligence, Internet of Things, Machine Learning, REgTech innovations, smart data discovery, augmented reality, robotic process automation and blockchain are some of the latest technologies already being used by FinTEch companies. The only technology that is not being accessed in Nigeria presently is the 5G network.

**Question 15:**

- Do technological hubs that could render help exist around?

Response:

Yes, there are technological hubs that render help around. Nigeria is among the few African countries with close to 100 tech hubs. We have not gotten to the level of Silicon Valley but these hubs have been very helpful to technology startup companies and even existing firms to develop innovative products. In Nigeria, we have nHub, Blue Hub, StartPreneur, StoneBricks Hub and Enspire.

**Question 16:**

Thank you for your time, is there any other thing worth knowing which we have not covered?

Response:

Yes, contrary to some beliefs, the future of FinTech companies in Nigeria and Africa is very bright. In the next 10 years, multicurrency payments, driven by an increasingly mobile and digitally savvy population, will emerge. Regulatory barriers are melting out since these regulations are constantly being reviewed. The market is large and ripe for online platforms that can efficiently deliver. Thank you.

Once more, thank you sir for your time and cooperation.

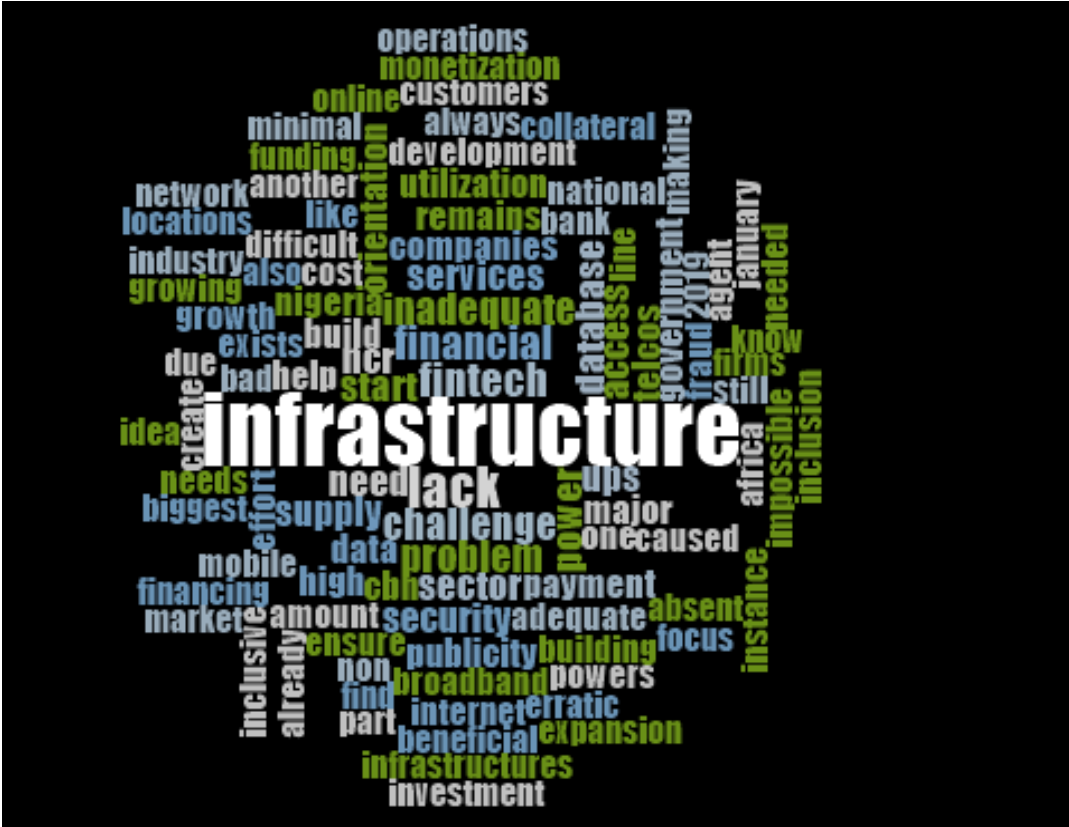
### Appendix 10: NVivo word cloud analysis

Codes	Themes nodes
Financial Inclusion	Financial Inclusion
FinTech funding	
Lack of infrastructure	
Operational support	
FinTech and bank Collaboration	Sustainability
Inadequate security	
Lack of trust	
Financial regulation	Regulations
Risk and regulatory compliance	
High cost of license	

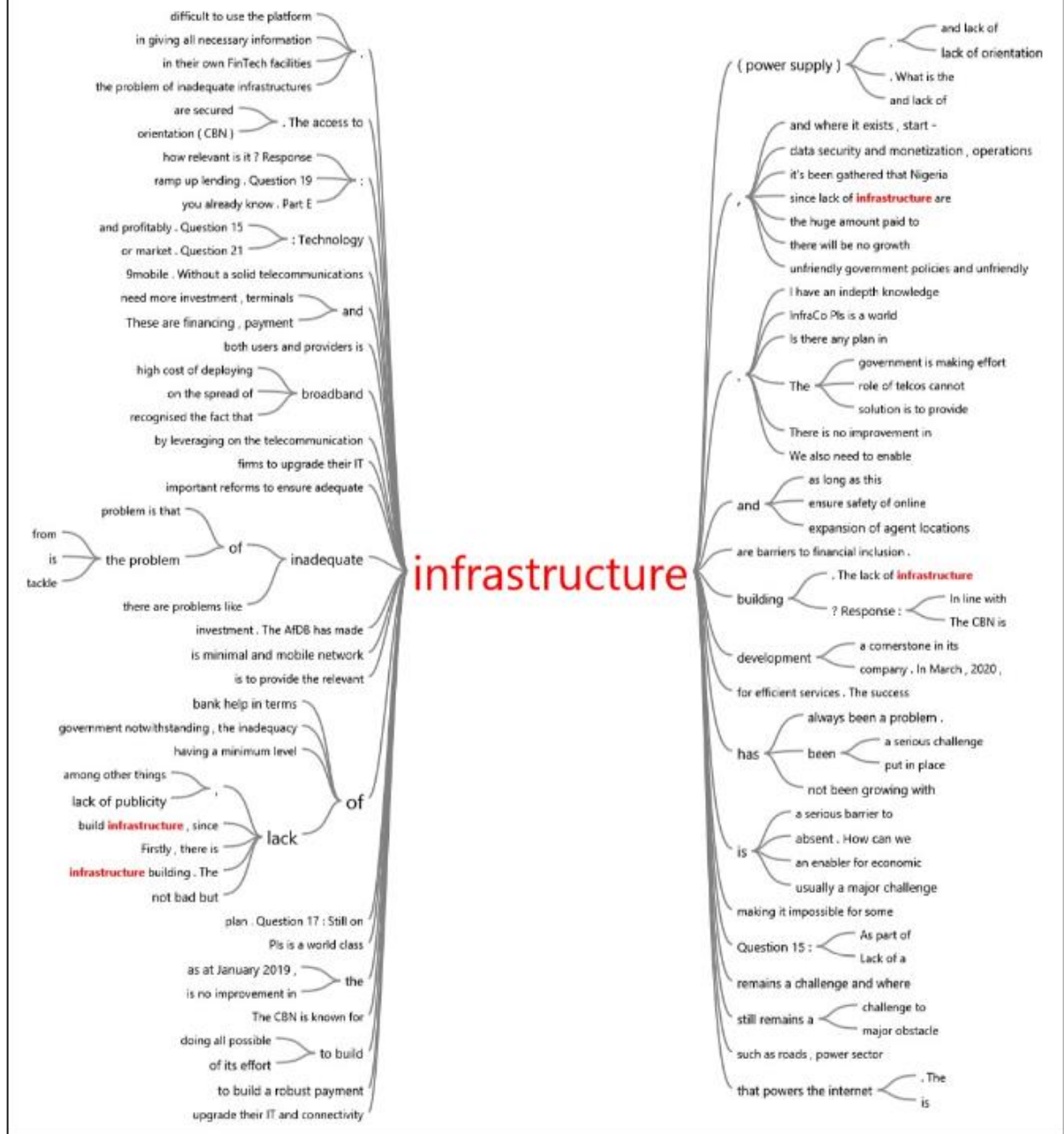
Table 10: Creating themes from codes (Source: Author).



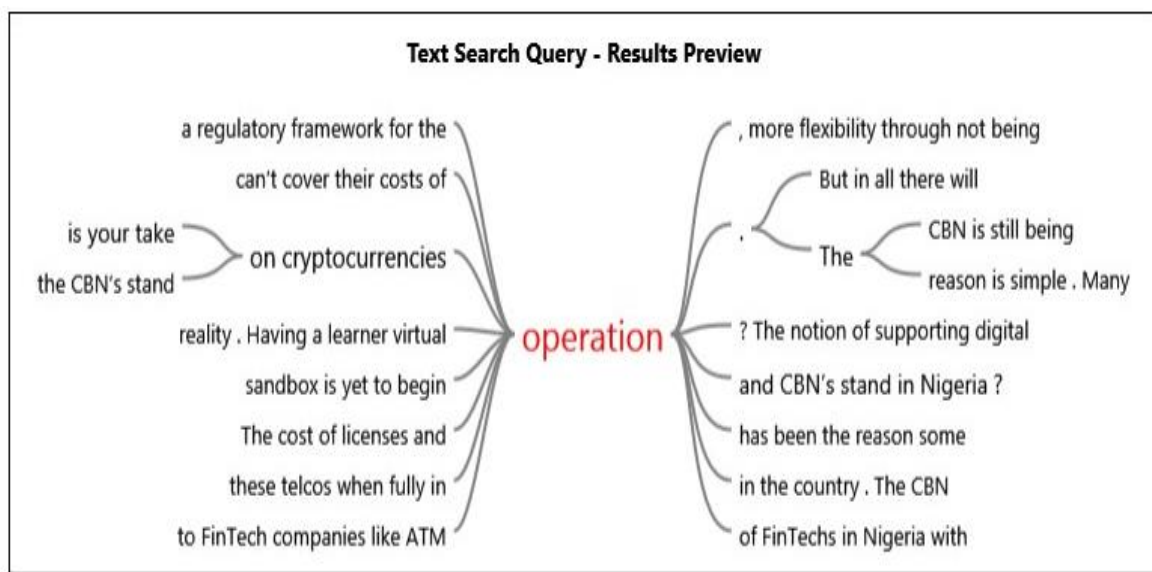
INFRASTRUCTURE



Text Search Query - Results Preview



# OPERATION









# SECURITY



Text Search Query - Results Preview















Text Search Query - Results Preview

