THE CASE OF DIGITAL FINANCIAL SERVICES IN THE DEVELOPING WORLD

A Fintech Perspective on the Future Nigerian Mobile Money Industry

Master Thesis

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Abstract

Mobile money has proven to be an effective tool for financial inclusion in many countries in Sub-Saharan Africa. In contrast to pioneers such as Kenya, Africa's largest country, Nigeria, has been lagging behind for a long time. However, shifts in external factors could dramatically alter this situation in the future. Fintechs played a particular role in Nigerian mobile money in the past and are seen as important enablers for mobile money adoption in the future. Due to external dynamics, however, the future overall market structure is highly uncertain. Therefore, the objective of this thesis is to identify the topics that will shape the Nigerian mobile money industry in the long term and deduce strategic implications for fintechs operating in the domestic market. To this end, the following research question is posed: "How might the macro- and meso-environment of the Nigerian mobile money industry change by 2035 and what are the implications for fintechs?" To answer this question, the authors applied strategic forecasting methods to conduct a Delphi-based scenario study. Specifically, four distinct future scenarios for the Nigerian mobile money industry were developed based on expert opinions on several external dimensions and assessed through interviews with representatives of leading Nigerian fintechs. As a result, this thesis identifies five key topics of the future external environment and four specific strategic implications for fintechs. The key topics include customer-centric product development, the creation of a collaborative ecosystem, the relevance of a digital society, the increasingly critical role of regulators, and the high level of market volatility in the future Nigerian mobile money space. Four strategic implications for fintechs emerge from these determining factors that involve using technology as the key enabler for customer-centric product development, building meaningful strategic partnerships, leveraging the existing network, and creating an agile internal organizational structure. Finally, apart from a particularly stringent regulatory context in Nigeria, the remaining four key topics proved to be transferable to a broader context and thus applicable to the industry environment in other proximate developing markets.

Keywords: Mobile Money, Financial Inclusion, Nigeria, Fintech, Strategic Forecasting, Scenario Planning, Digitalization, Strategy, Developing Countries

Abbreviation List

AFD	Agence Française de Développement (French Development Agency)
AML	Anti-Money Laundering
API	Application Programming Interface
AI	Artificial intelligence
b	Billion
BoP	Bottom of the Pyramid
B2B	Business-to-business
B2C	Business-to-consumer
CBN	Central Bank of Nigeria
C2B	Consumer-to-business
DFI	Digital Financial Inclusion
DFS	Digital Financial Services
EU	European Union
FI	Financial Inclusion
FSP	Financial Service Provider
Fintech	Financial technology
GSMA	Global System for Mobile Communications (GSM) Association
GEEP	Government empowerment program
G2P	Government-to-private
GFI	Green Financial Inclusion
ICT	Information and communications technology
KYC	Know Your Customer
MSME	Micro, Small and Medium Enterprise
m	Million
MM	Mobile Money
MMO	Mobile Money operator
MNO	Mobile network operator

MS	Moses Sule (OPay representative)
NIN	National Identification Number
NDIC	Nigerian Deposit Insurance Corporation
NSBP	Nigerian Sustainable Banking Principles
PAYG	Pay-as-you-go
PSB	Payment Service Bank
P2P	Peer-to-peer
POS	Point of Sale
P2G	Private-to-government
RQ	Research question
SB	Sharifah Balogun (Paga representative)
SME	Small and Medium Enterprise
SDGs	Sustainable Development Goals
USSD	Unstructured Supplementary Service Data
VC	Venture Capital

Preface

First and foremost, we would like to express our sincere and heartfelt gratitude for the sacrifices made by our family and friends for their unconditional support in completing this work.

Second, we would like to thank all the research participants who took the time to participate in the surveys and interviews despite their busy schedules. Without these insightful contributions, which form the backbone of our work, this thesis would not have been completed in its present form.

Finally, a special gratitude goes to our supervisor, Abayomi Baiyere, who provided us with detailed feedback and precious guidance throughout the entire project, despite the geographical distances and the turbulent pandemic.

Anna-Sophie Somo Watong Dustin Okwuagwu

Disclaimer:
Both authors are graduating from the MSc in Economics and Business Administration – Finance and Strategic Management and the CEMS Master's in International Management (CEMS MIM). For transparency, it should be mentioned that Chapter 2 (Academic Theory and Framework) and Chapter 3 (Methodology) were part of a previous research project completed for the CEMS MIM and were graded by supervisor Abayomi Baiyere. According to the requirements of both programs, they are allowed to be incorporated into this thesis. Through the course of the thesis work, these parts have been slightly altered and adapted to align with the final project.

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Chapter 1: Introduction

"For people in developed markets, mobile money is a convenience, one of the many digital advances that have made our lives easier. For billions of people, and millions of small businesses, in emerging markets, mobile money is much more than a "use case." It is - or can be - a lifeline, bringing the benefits of financial services to those who currently lack access, and thus enabling them to take initial steps toward healthier financial lives" – Osafo-Kwaako et al., 2018

1.1 Problem Statement

For a considerable number of people in the developing world, having a bank account can be a life changer. Lack of access leaves their hard-earned money and other valuables stored under the mattress, for instance, where they can get stolen or get lost in other ways. However, having a safe place to store money opens unbanked populations up to a variety of new opportunities. It can be beneficial in escaping the cycle of poverty by being less vulnerable towards crime and able to save. This allows low-income households to take advantage of job opportunities, to pay for the children's education and to advance gender equality. The virtual storage of money is the first step in including the unbanked to other financial services such as savings, credits, insurance, and payments stressing the importance of a widespread implementation of mobile money (MM) services. (Bill & Melinda Gates Foundation, 2021)

The Global Findex Database (2018) has been tracking the financial inclusion (FI) development since 2011. From 2014 to 2017, 515 m adults worldwide opened a bank account and moved forward from financial exclusion which demonstrate the improvements that have been made in giving, especially underprivileged people in emerging parts of the world, access to financial services. However, 1.7 b adults still do not have a bank account, which is 31% of the world's adult population. A significant number of unbanked adults live in Sub-Saharan Africa (SSA), where 57% of the population is lacking a bank account (Statista, 2018)

The introduction of MM expeditated the FI of unbanked adults in emerging countries. In Africa, the biggest success story is M-Pesa in Kenya. As most of the African MM providers, M-Pesa was founded by a mobile network operator (MNO). Safaricom founded the company in 2007 in cooperation with Vodafone. Since then, 25.5 m Kenyans have signed up to use the financial services offered by the market leader M-Pesa, which has grown from a basic SIM-card based money transfer

business to a complete financial service provider (FSP) working together with banks to offer loans and savings. (Reuters, 2019)

Nonetheless, this success story could not be replicated in every African country. Surprisingly, one of the countries in which people cannot fully take advantage of MM services is one with the biggest and most promising African economies: Nigeria. The country has been experiencing an incredible economic rise within the past 20 years. From 2000 to 2019, the GDP per capita climbed from US$ 568 to US$ 2,230 representing a percentage increase of almost 300% (The World Bank, 2020a). Nevertheless, Nigeria is still battling a number of hurdles including financial exclusion. The main reason why MM has not been equally successful, is the fact that the Nigerian government refused to grant non-financial businesses MM licenses. Since the biggest MM provider are MNOs, which fall into the category of non-financial businesses, MM services could not be offered on a larger scale resulting in almost 60% of the Nigerian population still living unbanked and only 6% with a MM account (Demirgüç-Kunt et al., 2018; Munshi, 2020). The Central Bank of Nigeria (CBN) lifted their restrictive license policy in 2018 and two of the four biggest MNOs (Glo and 9 mobile) received a so-called Payment Service Bank (PSB) license that allows them to offer MM services. However, the two most significant market players, MTN and Airtel, are still waiting for their PSB licenses to be approved. Hence, the impact on the promotion of FI has been moderate.

As banks were not able to fill the market gap, several fintechs were founded to address the needs of the unbanked (Munshi, 2020). Companies such as Paga or OPay offer their customers comparable services to those of conventional mobile money operators (MMO) - MNOs or banks - and became a relevant alternative in the MM space. Like the value chain models observed in other countries, Nigerian fintechs have built extensive agent networks that serve rural, peri-urban as well as urban areas (Paga, 2021, OPay, 2021). Their mission centers on providing affordable, accessible, and secure financial services by capitalizing on the advantage of technological solutions.

In 2012, the CBN formulated the objective of financially including 80% of the population by 2020 in the context of the "National Financial Inclusion Strategy". As the CBN fell short on achieving this goal, it recomposed its objective of financially including 95% of the population by 2024. (EFInA, 2021) However, considering Nigeria's past track record, it remains questionable whether this goal will can be achieved.

The biggest challenge industry players face is the high degree of uncertainty. There is little certainty and a lot of speculation around how the CBN will continue to influence the MM sector,

which new players are going to enter the market, how customer's preferences are going to evolve, and what part the digital transformation will play. In this complexity, fintechs will need to find a resilient position without neglecting their goal of banking the unbanked. This thesis will try to shed some light on how Nigerian fintechs can navigate this uncertainty.

1.2 Research Question

As one of the African sleeping giants in the MM industry (Chironga, de Grandis, et al., 2017), the authors want to give Nigerian fintechs a new perspective which they can incorporate in their strategic orientation and enable them to advance the FI agenda in Nigeria.

In order to address the high level of market uncertainty that is not unusual for emerging economies, this thesis will take a forward-looking perspective. It will try to analyze the multitude of factors influencing the future of the Nigerian MM industry in a structured way. This allows to reveal specific deductions that are relevant to the strategic orientation of fintechs. Therefore, the research question (RQ) is framed as follows:

How might the macro- and meso-environment of the Nigerian mobile money industry change by 2035 and what are the implications for fintechs?

In coherence with answering this question, the authors introduce the concept of strategic forecasting. In contrast to traditional forecasting, strategic forecasting concentrates on new and innovative aspects in making strategic recommendations for the future (Duus, 2013). By combining two strategic forecasting techniques, scenario planning and the Delphi technique, this thesis will present specific future scenarios for the Nigerian MM industry and their impact on the FI advancements in the country. Scenario planning serves as an explorative approach to investigate of what *may* happen (Börjeson, Höjer, Dreborg, Ekvall, & Finnveden, 2006). The Delphi technique represents one of the most widely used methods of forecasting technology developments (Kang et al., 2013), which increases its relevance in the context of this thesis. The scenario analysis will be complemented by case company interviews with representatives of relevant fintechs.

The findings of this study will not only provide valuable insights on different alternatives of how the Nigerian MM industry could potentially evolve in the future and on the role that fintechs may play in

these scenarios, but they will also have valuable implications for the MM industry in other emerging countries operating in a similarly uncertain market environment.

1.3 Delimitation and Choices

Based on the defined objective of this study to identify relevant topics of the future Nigerian MM industry and implications for fintechs, this section elaborates on the delimitation of our scope.

Our initial impulse was the idea to investigate the future impact of mobile financial services (MFS) on FI in Africa. Especially SSA proved to be a suitable research area. We found that SSA is the epicenter of the financially excluded, and in 2017, more than half of the population did not have a personal bank account (Statista, 2018). In this context, MFS become relevant, emerging as an important substitute for the traditional bank account. Beyond M-Pesa, particularly MM proved to effectively contribute to the FI movement across SSA (Demirgüç-Kunt et al., 2018). While this initially motivated us to focus our analyses on MM, we quickly realized the need to broaden our scope to include digital financial services (DFS). Looking a decade ahead, increasing digitalization and progress may naturally lead to the full spectrum of DFS becoming relevant for the excluded population. Therefore, we saw DFS, i.e., mobile, web and app-based services, as a logical extension of MM to focus on. In addition, we wish to highlight our business angle, excluding highly technical issues and allowing us to focus on strategic topics.

Having clarity on the topic, it seemed obvious to focus on just one country, especially in terms of scope and feasibility. In the past, Kenya has received a lot of academic attention due to the success of M-Pesa. Therefore, we aimed to focus on another country, one where MM still has high growth potential. We found that the sleeping giants, namely Nigeria and Ethiopia, are key for future MM growth in SSA (GSMA, 2019). Nigeria sparked our interest as it is the largest country by population and GDP (World Bank, 2021a, 2021c), is home to the continents largest unbanked population (Munshi, 2020), and has an unusual and dynamic MM market.

Unusual, as fintechs are the central players in MM, unlike MNOs in other markets. Dynamic, as it is unclear whether this will endure in the future given shifts in the market. Indeed, overall uncertainty is increasing in the Nigerian financial services environment (GSMA, 2020). This ambiguous market environment attracted us to explore this topic academically. Therefore, another delineating variable is the focus on the future role that fintechs play in this market.

These structural changes are mainly influenced by external factors, so we sought a systematic approach to assessing both the changes and their impact. Considering the immaturity of

the market, the data availability does not offer a reliable bases to conduct traditional quantitative forecasting. The Global Findex for instance dates to 2011, however only provides new data points every three years and the latest data collected is from 2017. Therefore, the authors looked for alternative concepts that can help to evaluate the future of the MM industry that is also meaningful and valuable to businesses operating in that industry. This ultimately led us to strategic forecasting with its methods to systematically develop an understanding of the future business environment, market developments and trends on a strategic level.

1.4 Motivation and Purpose of the Thesis

To justify the overall relevance of this thesis from different perspectives, this section is organized into two parts. It begins with an elaboration of the academic motivation, gradually developing the research gap. Following this, we present our personal motivation and interest in the research area.

1.4.1 Academic motivation

Our research aims to fill an identified research gap in the existing literature, which is developed below. To begin with, most of the research to date has focused on traditional financial services. DFS as a relatively new research area has received comparatively little consideration. However, due to increasing digitalization and the growing popularity of financial technology and fintech companies, this area should receive more academic attention. This attention is increasingly being paid to digital payments with a view to developed countries, but much less with a focus on developing nations. However, this geographic space is also very attractive from an academic perspective. This is primarily because developing countries account for most financially excluded people and financial technology has proven to be an effective tool for FI (Demirgüç-Kunt et al., 2018). As mentioned earlier, SSA is known as the epicenter of the unbanked and of MM and continues to show significant growth potential for the future. Moreover, those papers that do address DFS often focus on the impact of MM in Kenya, leaving MM in the most populous country in SSA, Nigeria, understudied.

Researchers that investigate Nigerian MM mostly discuss past developments or the current state. Despite its relevance, we could not identify any research that addresses the development of MM in the future. Identifying relevant themes for the future provides valuable guidance to business strategists, enabling them to evaluate current strategies and policies and derive important implications for the future, both in terms of emerging challenges and opportunities. Of note in this context is the

value of scenario planning. Scenario planning assumes the existence of irreducible uncertainty and that the strategist may face ambiguity in any situation (van der Heijden, 1996). This emphasizes the importance of thinking in alternatives especially in times of high environmental uncertainty.

Overall, research that holistically addresses the future development of digital payments in the most promising country for MM in SSA is still lacking. Our work aims to fill this gap and to provide strategic implications for today's stakeholders, especially fintechs, operating in the Nigerian industry, but also for settings proximate to the Nigerian environment.

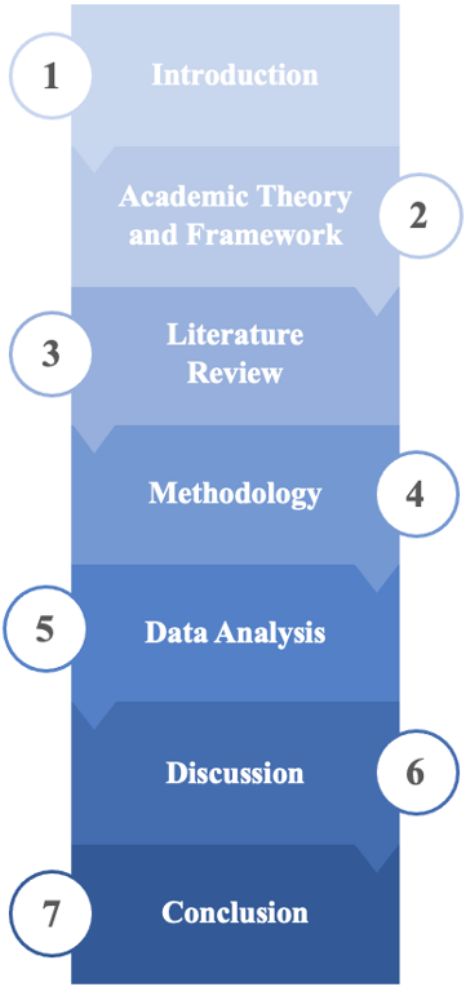
1.4.2 Personal motivation

Apart from the academic relevance, our research focus is also personally motivated. We both are completing the Finance and Strategic Management program in a double degree with the CEMS Master's in International Management. A combination that is close to our chosen field of research. We both share a fascination for the financial industry, and particularly for the strategic implications of certain industry changes in a wider context. The ability to explore these applying scenario planning in a 3rd semester course aroused excitement. The course introduced us to the method and highlighted the incredible value it can have in today's increasingly complex and ambiguous times. In addition, the CEMS International Management program sparked our interest in the topic of FI. Its focus on issues beyond traditional business, such as responsibility and diversity, deeply inspired us. In addition to exploring this topic in our thesis, it even led to one of us becoming professionally involved in this field during our studies. Finally, our interest is rooted in our family background from Nigeria and Cameroon, which explains our close personal connection to the topic. This background makes us aware of the value of MM, the existing curiosity in rural areas for innovative solutions, but also the individual problems around FI. The personal connection and passion for this topic was essential in our eyes to deal so intensively with a topic and to add lasting value both academically, practically, but also for ourselves.

1.5 Thesis Structure

This thesis is subdivided into seven sections. First and foremost, it began with the above introduction giving a first overview of the topics covered, the RQ and the scope of this project. Secondly, following the introduction, the authors will thoroughly explain the academic theory and theoretical framework. From a theoretical perspective, the authors will amplify the specifics of the scenario planning approach in a strategic forecasting context and explicate how and why it can be combined with a Delphi study. In the third chapter, pertinent literature will be discussed. In light of the thesis' topic, the authors conducted an in-depth analysis of the literature surrounding the state of FI, the development of DFS and MM services mainly focusing on developing countries and will, finally, elaborate on fintechs and their role in the developing world. Fourth, readers will be presented with the methodology. It comprises a detailed depiction of the methods and approaches applied in the research process and how the authors plan to extract and analyze the data. In the subsequent data analysis of the fifth chapter, the scenario analysis will be performed and validated with the input obtained in interviews with representatives of leading domestic fintechs. Following this, the sixth section, the discussion, illustrates the key findings from the data analysis as well as specific implications in the context of the RQ. The authors will also try to transfer the findings to a broader context, be critical about the limitations of this project and make some recommendations for future research. Lastly, the seventh chapter will recap and conclude the central topics, methods and findings that were instrumental in answering the RQ.

Figure 1: Thesis Structure



Chapter 2: Academic Theory and Framework

The concept of strategic forecasting represents a key element within this work, as it serves as a framework for developing an understanding of the future of MM in Nigeria. Therefore, it is necessary to define the term, highlight its difference from related areas, and outline techniques that are central to this thesis.

The first part of this chapter therefore defines the concept of strategic forecasting by reviewing its conceptual development followed by an outline of its key characteristics. Furthermore, it provides an overview of the three central research directions with their respective techniques that researchers and practitioners can use to analyze the future. The second and third parts of the chapter highlight two of these techniques, namely scenario planning and the Delphi technique. In conjunction, these form the theoretical framework of this thesis, which is outlined in the final part of this section.

2.1 Strategic Forecasting

2.1.1 Conceptual Development

The 20th century witnessed a back-and-forth regarding forecasting literature and practice. From 1950 to 1970, a period of expansion after World War II, the world economy experienced extremely high growth rates (Ansoff, 1984; Duus, 1999). Underlying this was a growing prosperity that led to continuous growth in demand (Ansoff, 1984). In this context, demand was predictable, and the business environment was perceived to be stable (Ansoff, 1984). Therefore, forecasting and planning efforts were based on demand data for existing products and were designed to solve problems at the operational or tactical level using quantitative methods (Boshoff, 1989; Capon & Hulbert, 1985).

External stability, however, was not long-lasting. The following decade from 1970 to 1980 was characterized by increased turbulence and competition in the business environment. In light of unexpected socio-economic shocks such as the oil crisis of 1973-74 or the US economic recession of 1982-83, traditional forecasting and planning came under criticism (Keichel 1982 & 1989, as quoted in Roney, 2010). The concepts were deemed unsuitable in turbulent times and gradually lost relevance. Environmental turbulence continues to the present to be driven by a variety of factors: Increased internationalization, increased expansion of business market operations, increased importance of financial markets, increased technological and scientific development, increased importance of environmental concerns, increased importance of politics and the varying influence of

business cycles (Duus, 1999; Oxelheim & Wihlborg, 2008). Consequently, emerging economic theories characterized the business environment as increasingly unpredictable (Duus, 1997). With the rise in complexity of external conditions, practitioners and academia have shifted the focus on internal aspects of organizations to explain the nature of competitive advantages, in line with the resource-based view (Barney, 1991; Prahalad & Hamel, 1990). Developing core competencies and limiting weaknesses rather than adapting to external market became the guiding principles (Duus, 1997). A supply-side perspective was adopted.

In the early 1980s, however, some authors began to refocus on the relationship between forecasting and planning. Capon and Hulbert (1985) in particular recognized the problematic nature of forecasting in a dynamic environment. In contrast to earlier views, they saw environmental turbulence as an opportunity both for firms and for rethinking the concept of forecasting.

2.1.2 Characteristics and Definition

Capon and Hulbert first introduced the idea of strategic forecasting in 1985 based on existing theories of strategic planning and traditional forecasting, but distinctly different from both concepts.

First, referring to the link to strategic planning, the shared term "strategic" indicates the relevance of both concepts to the strategy development process. Therefore, looking at this very tripartite process clarifies the relationship between both terms: strategic forecasting can be described as the search for alternative strategic options, strategic planning as the choice between these options and strategic implementation as the effectuation (Duus, 2008). Thus, strategic forecasting represents the starting point for all further activities at this level and, is therefore the basis for strategic planning (Duus, 1997, 2008).

Similarly, several distinctions can be made from traditional forecasting. In contrast to traditional forecasting, which, as stated above, aims to solve problems at the tactical or operational level with regard to existing products, markets and activities (Duus, 2013), strategic forecasting focuses on forecasts that are strategic to the firm with regard to new and innovative products (Duus, 2013). Strategically relevant are precisely those elements in the environment that map structural change (Capon & Hulbert, 1985). These emanate from areas where signals are weak and difficult to detect, or do not yet exist. Thus, in strategic forecasting, economic and structural metrics take the place of operational metrics (Capon & Hulbert, 1985). Due to the inconsistently quantifiable structural factors at the strategic level as well as the novel nature of the products, markets and activities, strategic forecasting uses both quantitative methods and qualitative methods (Capon &

Hulbert, 1985; Duus, 2013). This excludes simple extrapolations. Moreover, based on these characteristics, it becomes clear that strategic forecasting focuses on the long-term non-proximate environment as the object of analysis in order to identify and map structural changes (Duus, 2013). In contrast, traditional forecasting focuses on the analysis of the short-term proximate environment (Duus, 2013). In line with this idea, we see a shift from the need to focus on the micro level of the business environment to the macro (i.e., national or global) and meso (i.e., industry) levels (Duus, 2016). Table 1 shows an overview of the differences between traditional and strategic forecasting.

Table 1: Comparison of traditional and strategic forecasting

Characteristic	Traditional Forecasting	Strategic Forecasting
Time Horizon	Short-term	Long-term
Object of Analysis	Proximate environment	Non-proximate environment
Business Environment	Micro	Meso and macro
Organizational Level	Operational/tactical	Strategic
Metrics	Operational	Economic and structural
Methods	Quantitative	Quantitative and qualitative
Application	Traditional products, markets and activities	Innovative and new products, markets and activities
Practical Examples	Econometric models, extrapolations, consumer questionnaires, focus groups, etc.	Strategic business cycle forecasting, strategic warning and futures research (demographic forecasting, technological forecasting, scenario planning, Delphi technique, etc.)

Source: Own illustration, adapted from Duus (2013)

Capon and Hulbert (Capon & Hulbert, 1985) further emphasize the need for conditional forecasts. According to the authors, in the context of a turbulent environment, companies should consider the potential impact of macroeconomic effects on the market and on their own company. Therefore, unlike traditional forecasting, strategic forecasting requires conditional "what-if?" forecasts to reveal alternative futures that reflect uncertainty (Capon & Hulbert, 1985). This implies that a high degree of forecast accuracy is both highly unlikely and unnecessary. "Competition is a discovery process conducted by economic agents, all of whom are imperfectly informed about the future" (Duus, 2008). Thus, it is precisely the company that understands the future conditions better than the competition that secures competitive advantages. The correct perspective is more valuable than the actual prediction (Capon & Hulbert, 1985). This new approach to forecasting changes the role of the company "from that of a passive or reactive 'adaptor' to an active 'innovation machine'" (Duus, 2008). Based on these characteristics, Duus (2013a) developed a comprehensive definition of strategic forecasting:

"Strategic forecasting may be defined theoretically as the area of business economics that deals with the study and practical application of methods, theories, models and techniques for long-term analysis of the non-proximate environment of the firm with the purpose of conducting strategic change."

2.1.3 Research Directions

Over the past decade, three distinct main research directions have emerged in the field of strategic forecasting, which form the underlying structure of the concept and contribute to its development: strategic business cycle forecasting, strategic warning, and futures research (Duus, 2013). Each of these main streams bundles several sub-streams, the use of which depends on the objective and preference of the researcher or practitioner. The lines between the main streams are fluid, so none of them should be seen in isolation. The output of methods from one research direction often serves as input to forecasting methods from another.

Strategic Business Cycle Forecasting

A first main research direction is strategic business cycle forecasting, which, as the term suggests, focuses on business cycle analysis (Duus, 2013). In fact, this forecasting technique refers to

procedures that involve describing, understanding, explaining, and predicting business cycles for knowledge generation (Navarro, 2009). The concept is often based on technical analyses from financial forecasting or economic indicator methods (Duus, 2013). This work will not further discuss strategic business cycle forecasting, as it will not develop forecasts for huge, capital-intensive companies, for which the method is most suitable due to very high environmental turbulences (Duus, 2013).

Strategic Warning

A second main research direction is the area of strategic warning, which focuses on a company's management system (Duus, 2013). This area found its origin in the work of Ansoff (1984) and includes the environmental scanning part of strategic market management, which refers to the way managers in practice organize their efforts with strategic forecasting and external uncertainty (Aaker, 2013; Vecchiato & Roveda, 2010). Hence, techniques that address organizational development to increase the ability of management systems to deal with market uncertainty are part of strategic warning (Duus, 2013). Although the focus of this paper is not on strategic warning, interesting conclusions can be drawn in the last part of the analysis regarding the strategic forecasting efforts of specific companies.

Futures Research

The third and last main research direction is the area of futures research, which deals with the analysis of the future (Duus, 2013). This area of strategic forecasting is very broad and includes a variety of methods such as expert panels, content analysis, demographic analysis, and technological forecasting (Duus, 2013). A uniform classification into qualitative and quantitative methods cannot be made, as many of the tools combine both methods. In addition to the techniques listed above, the toolbox of futures research further includes scenario planning and the Delphi technique, both of which require closer examination as they are of central importance to this work. Therefore, the concepts will be discussed in detail in the following sections.

2.2 Scenario Planning

2.2.1 Definition

The application of scenario planning to the business environment is a fairly recent phenomenon (Bradfield et al., 2005). A comprehensive bibliometric study conducted by Varum and Melo (2010) on scenario planning studies showed that 70% of all papers analyzed were published in the 21st century. Numerous definitions of the term scenario are discussed in the literature in the context of scenario planning. This paper follows the idea of a scenario as an intelligible, internally consistent and sophisticated description of a possible situation in the future, based on a complex network of influencing factors (Gausemeier et al., 1998; van der Heijden, 1996). Offering a structure for dealing with uncertainty, thinking in alternatives, and sharpening the planner's perception are main contributions of scenario planning (van der Heijden, 2004). Herman Kahn (1967) regarded as the father of modern scenario planning, further emphasized the importance of considering the unthinkable when developing scenarios.

There are a variety of structures and approaches to the methodological design of scenario planning implementation. Since the concept forms the basis for this work, it is necessary to outline the key design elements of scenario planning and its options at this point. It is important to highlight this aspect since the following outlines possible design options and does not represent the selection. The specific selection for this thesis is presented in the methodology in Chapter 4.

2.2.2 Design Elements

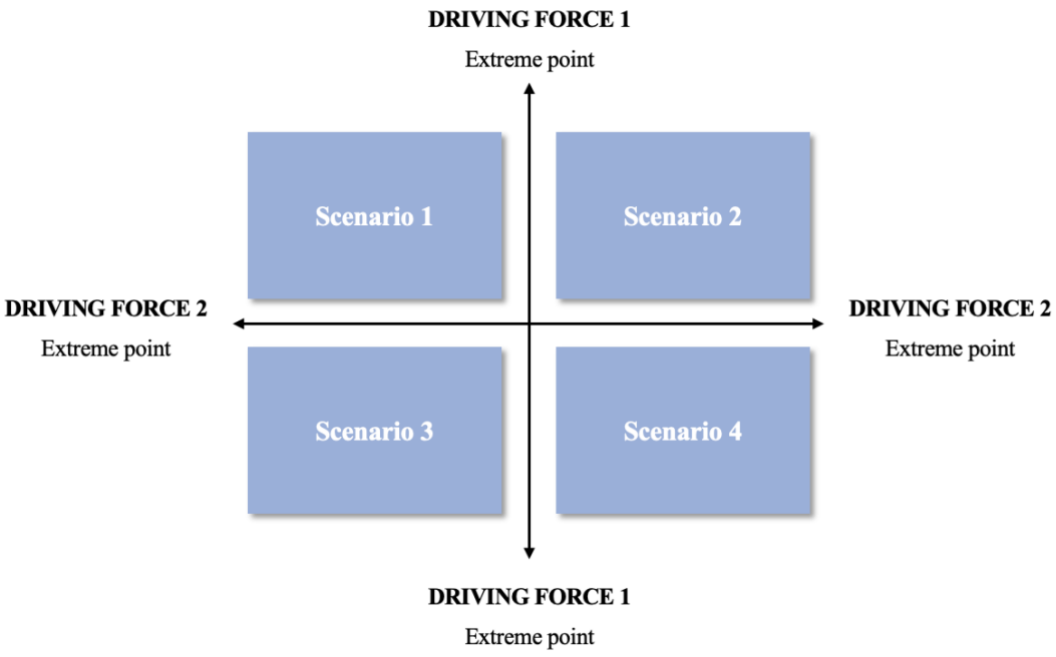
In their meta-study on scenario planning publications, Nowack et al. (2011a) outline four consistently recurring design elements of scenarios: The type, the logic, the presentation, and the range of future states.

First, scenario planning studies can be consistently classified by type into two distinct categories: explorative and predictive studies (Börjeson et al., 2006). Explorative studies, on the one hand, aim to identify new drivers and future challenges with regard to a certain topic of interest. Predictive studies, on the other hand, intend to determine the future development of an already known variable, such as the demand for a particular product. Thus, the explorative approach is wider in scope and answers the question of "what *may* happen", whereas the predictive approach provides the answer to the question of "what *will* happen". The two types also differ in terms of their time frames and nature of information: Exploratory studies tend to have a long-term focus due to the search for novelty

and include more qualitative information. In contrast, predictive studies are more short-term oriented and rely on quantitative methods and information to predict the development of specific variables. Overall, based on the meta-study, the majority of scenario studies can be classified as explorative (Nowack et al., 2011). In addition, Börjeson et al. (2006) categorize normative studies as those that answer the question of how a certain goal can be achieved. This type, however, can be integrated with the previous two, is therefore inconsistent and less commonly used in practice as a stand-alone approach.

The second design element is the scenario logic. Using a specific logic to develop scenarios is important to ensure internal consistency (Nowack et al., 2011). Among a variety of different logics, one form is considered dominant: the matrix logic, i.e., a two-by-two plot of the two key drivers (Nowack et al., 2011). In this case, building on the extremes of the drivers, four alternative future scenarios would be developed. Figure 2 below illustrates the matrix logic.

Figure 2: The Matrix Logic of Scenario Planning



Source: Own illustration, adapted from Heijden (1996, p. 204-205)

Although a certain logic tends to imply some sort of structure for the presentation of future states, it can take different forms. A structured presentation can be achieved by distinguishing between "worst case", "best case" and "business as usual" scenarios (Nowack et al., 2011). Alternatively, scenarios

can be formulated based on probabilities as "most likely" and "least likely". However, this approach has been criticized for its lack of objectivity (Goodwin & Wright, 2001; Millett, 2003; Schnaars, 1987). Often subjective determination of probabilities of scenarios can lead to biases. Moreover, one aspect to consider is to present so-called wildcards or future discontinuities, which some authors declare to be essential when developing scenarios. Following the notion of thinking the unthinkable, these are future events that may have a probability close to 0 but would have an enormous impact if they were to occur. (Cornish, 2003; Grossmann, 2007) The most recent example of a wildcard is the COVID-19 pandemic.

Finally, the scenario logic and presentation determine the range of future states, which is the final key design element. The matrix logic outlined above allows for the development of four distinct future states, while a classification according to "most likely" and "least likely" would create only two scenarios. Van der Heijden (1996) suggests a minimum of two scenarios to reflect uncertainty when dealing with the future.

2.2.3 Scenario Approach

In addition to the design elements presented earlier, the underlying approach, that is the specific process of scenario planning, represents another important building block to be decided upon. Therefore, this section presents such a process that can be used to systematically develop the scenarios.

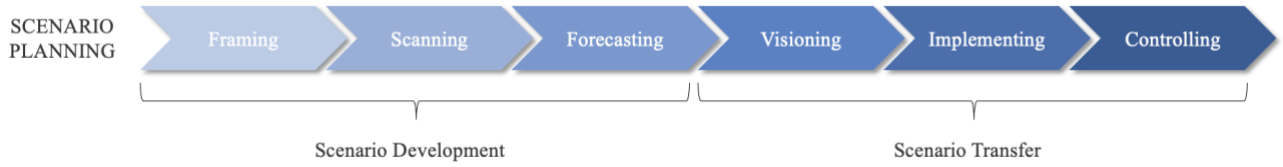
First, it must be emphasized that also in terms of the process, there are many different approaches to scenario planning, which vary in the number of steps involved. However, most of them share the characteristic that they include a phase of scenario development followed by a transfer phase to act as a basis for decision making in a specific context (Bishop et al., 2007; Lindgren & Bandhold, 2009; Nowack et al., 2011). The process presented in Figure 3 illustrates this feature and therefore serves as an appropriate example of a scenario planning project. The process was outlined by Nowack et al. (2011) and is based on the general foresight approach of Bishop et al. (2007). It consists of six stages, which are evenly divided into the scenario development and scenario transfer phases.

Scenario development includes three stages: framing, scanning and forecasting. Framing defines the basis of the project. It involves formulating the target audience, purpose and goals of the project and results in a project plan. The next stage is the scanning of the environment, which focuses on the identification of relevant information. The goal here is to generate a broad understanding of future trends, drivers and uncertainties related to the object of analysis. Finally, the forecasting stage

wraps up the scenario development process. The broad mass of information is broken down so that key drivers are identified. Based on these, consistent alternative future states can be derived and expressed in scenarios.

The scenario transfer phase is similarly divided into three stages: visioning, implementing and controlling. An important function of scenario planning is to serve as a basis for decision-making. This function is fulfilled within the visioning stage, which draws concrete strategic implications and thus consequences for today's decisions based on the identified scenarios. Subsequently, in the final two stages, implementing and controlling, the necessary resources for implementation are organized and continuously reviewed with regard to predefined goals. Figure 3 gives an overview of the generic scenario planning process.

Figure 3: Generic Scenario Planning Process



Source: Own illustration, adapted from Nowack et al. (2011)

2.2.4 Quality Criteria

Since scenario planning is a technique aimed at drawing conclusions about an uncertain future, specific quality criteria should be applied. These serve to assess the scenarios and ensure their highest possible quality. Different authors have previously discussed quality criteria for scenarios (Chermack, 2006; Schoemaker, 1991, 1993, 1995; Stewart, 2008). These are presented in the following and are discussed in more detail in the methodology (see Chapter 4.9).

Nowack et al. (2011) recommend the four general scientific quality criteria outlined by Miles and Huberman (1994), extended by the criterion of creativity, which is essential in the context of scenario planning (Schoemaker, 1991, 1993, 1995). The criteria comprise the objectivity, credibility, transferability, legitimacy and creativity of scenarios. Objectivity refers to possible psychological biases of the researchers. Credibility represents the internal validity and reliability of scenarios. Transferability refers to external validity, that is, the relevance of the scenarios beyond the planning

project as such. Legitimacy focuses on the usability of the scenarios for the actual users, for instance decision makers in corporations. Finally, creativity reflects the innovative nature of the scenarios.

In addition, elements of the 7-point test of consistency developed by Duus (2016) can be used to supplement the criteria outlined above. These are designed to facilitate the scenario development process given the diffuse nature of the scenario planning literature (Duus, 2016). Accordingly, scenarios should depict future states that deviate from the present but can be built up incrementally from the present as a logical narrative based on external drivers and trends. This is necessary to ensure internal consistency. Moreover, they should not be unrealistic and should have equal probability. However, this point somewhat contradicts the main idea of wildcards and thus similarly the assumption that considering those discontinuities can enhance the value of scenario planning. Finally, the scenarios should be clearly distinct from each other to reflect the range of possible future states.

2.3 Delphi Technique

Having discussed the concept of scenario planning in more detail, there is another area of futures research that needs further elaboration: the Delphi technique. Since this thesis perceives the technique more as a methodological tool, Chapter 4 will expand on its assumptions and specific design. Nevertheless, in order to understand the underlying framework of the thesis it is valuable to provide a brief introduction already at this point.

The Delphi technique – first introduced by the RAND Corporation in the mid of the 20th century - is a method for solving complex, usually forward-oriented issues on a specific topic based on subjective but well-informed expert opinions (Dalkey, 1967; Linstone & Turoff, 1975). Practitioners of the Delphi technique aim to explore alternative futures, their probabilities of occurrence, and their desirability in relation to a given topic (Bell, 1997). Opinions are collected anonymously by issuing questionnaires, then aggregated and refined in a multi-stage process (Bell, 1997). Each stage thus builds on the results of the previous stage. On the one hand, the technique serves as a tool to systematically develop a consensus on future states with the help of expert opinions (Dalkey, 1967). On the other hand, it allows to identify dissent or non-convergence of opinions with regard to this particular topic (Linstone & Turoff, 1975).

Most papers reviewed in meta-studies conduct two Delphi rounds, whereas some of them perform up to four (Nowak et al., 2011). Real time studies represent a special form, in which a larger number of feedback loops can be carried out electronically. The number of iterations is tied to both

the goal of a Delphi study and the functions it needs to fulfill within the scenario analysis. For instance, feedback loops are particularly relevant when studies aim to reach a consensus. Besides, there is a positive correlation between the desired functions and the required number of iterations (Nowack et al., 2011).

There are three distinct functions of the Delphi technique, which become apparent dependent on the design of the Delphi technique: The idea generation, the consolidation as well as the judgment function (Häder & Häder, 2000; Okoli & Pawlowski, 2004): First, when the user wants to generate a wide range of future trends and events, the Delphi technique serves for idea generation. Engaging with experts allows to obtain a diverse set of opinions and views on a certain topic. Second, assuming this broad spectrum of ideas already exists, and the goal is to narrow it down, the technique serves as a way to consolidate the list of possible future states. The goal here is to identify the most important drivers amongst the pool of ideas. Third, if the goal of the user is to formulate a future that is as precise as possible, that is, to generate a consensus among the experts, this illustrates the judgment function of the Delphi technique. Experts evaluate the importance, impact, time of occurrence and probability of the previously identified key drivers.

2.4 Theoretical Framework

In recent years, researchers and practitioners have increasingly combined the two strategic forecasting techniques described above (see e.g. Postma et al., 2007; Rikkonen & Tapio, 2009; Von Der Gracht & Darkow, 2010). Depending on which of the respective methods remains the dominant one, they are referred to as “Delphi-based scenarios” or “scenario-Delphis” (Nowack et al., 2011). The former approach is used in a large number of works outlined above and is the one adopted in the present work. Therefore, the construction of Delphi-based scenarios should subsequently be understood as the underlying framework of this work. Scenario planning is established as an overarching frame in which the Delphi technique is integrated. This provides a structured approach to collect data, process this data and ultimately answer the RQ.

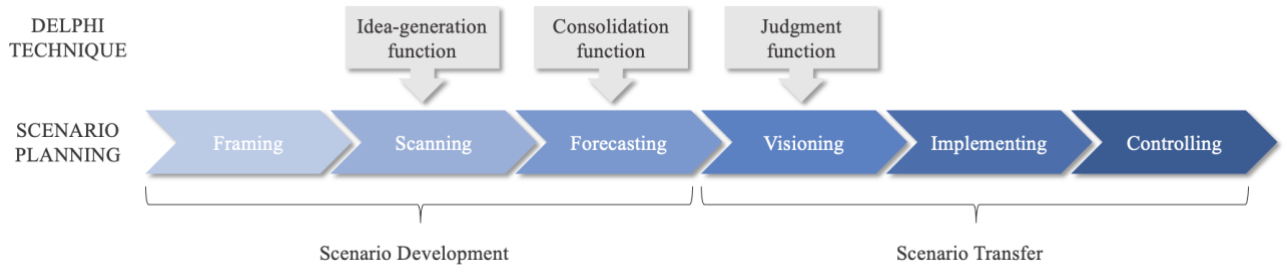
The construction of Delphi-based scenarios has been recommended by a large number of authors due to three advantages: First, the data generated by the tools serves as a reliable and valuable input for the construction of the scenarios (Rikkonen, 2005). Second, this approach is particularly useful for long-term issues, as common in scenario planning, since expert opinions often serve as the only available and reliable source of information (Linstone & Turoff, 1975). Third, the Delphi process can easily be integrated into different stages of scenario planning without breaking up the processes

as such (Kameoka et al., 2004), while increasing the quality of the scenarios. This becomes clear when looking at the integration in more detail.

Drawing on the scenario planning process presented above, according to Nowack et al. (2011), value-creating integration can be achieved in three different stages, each of which is linked to one of the three Delphi functions described earlier: An integration of the Delphi technique in the scanning stage reflects the idea-generation function, that is to generate creative input and to identify future trends and challenges. In the forecasting stage, experts help to break down the previously identified drivers. This relates to the consolidation function of the Delphi technique described above. Finally, an integration in the visioning stage would be viable, since the experts could evaluate the different scenarios and derive concrete strategic implications for decision-making. This illustrates the judgment function of the Delphi technique.

Based on the quality criteria for scenarios presented earlier, the authors conclude that the integration of the Delphi technique in both the scanning and visioning stages of scenario planning best enhances the quality of scenarios (Nowack et al., 2011). These increase the objectivity, credibility and creativity, whereas an integration into the forecasting stage merely increases the objectivity of scenarios. Increased objectivity stems from the distributed responsibility among experts, so that researchers are not solely responsible for identifying an exhaustive list of future drivers. Credibility can be increased by having experts improve the completeness of the scenarios. There is less risk of researchers unintentionally disregarding significant drivers. Finally, researchers can draw from a larger reservoir of educated and creative ideas, increasing creativity of scenarios. Figure 4 illustrates the possible integrations of the Delphi technique along the scenario planning process.

Figure 4: Integration of the Delphi Technique Within the Generic Scenario Planning Process



Source: Own illustration, adapted from Nowack et al. (2011)

Due to the high complexity of foresight studies, the integration of the Delphi technique into the scenario planning process is recommended in only one stage (Nowack et al., 2011). A specific integration depending on the type of scenario planning is considered optimal: On the one hand, there are rather long-term, explorative scenario studies. Those benefit most from the creative input of experts early in the process. Therefore, an integration in the scanning stage is most meaningful in those cases which refers to the idea-generation function of the Delphi technique. One the other hand, more short-term, predictive scenario studies were outlined previously. In this context, the use of the judgment function and thus an integration in the visioning stage is suitable. Due to the considerably higher number of explorative studies (Nowack et al., 2011), the integration in the scanning stage via the idea-generation function should be emphasized as the most common.

In summary, many authors recommend the Delphi technique as a useful extension of scenario planning. The simultaneous application of both techniques increases the quality of the forecasts and thus that of the scenarios developed. Ultimately, this enhances the value of the overall strategic forecasting effort.

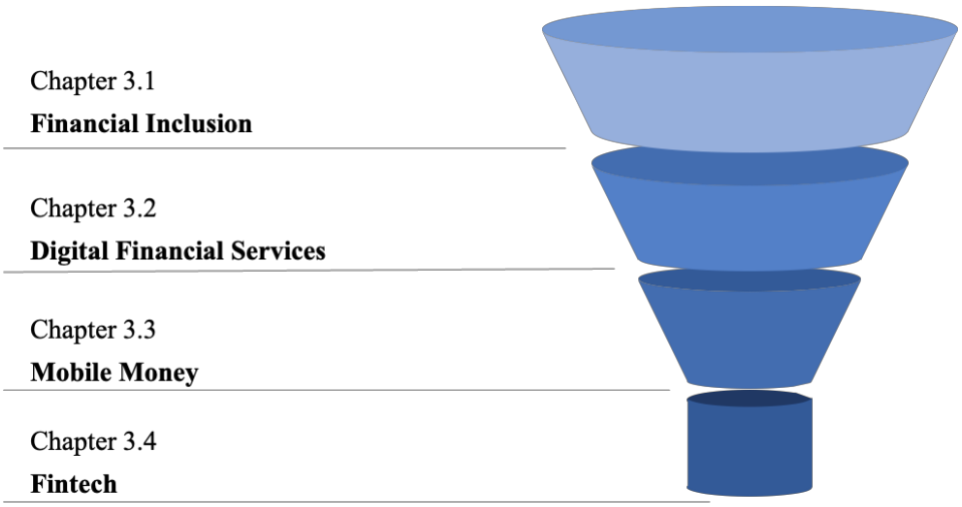
Chapter 3: Literature Review

The purpose of this literature review is, first, to provide the reader with a thorough understanding of the research area relevant to this thesis. Second, it functioned as an integral component to the thesis process. Throughout the process, the review served as a means for the authors to position the thesis within the existing literature and to gradually elaborate and substantiate the research area.

The chapter is divided into several subcategories outlined along a funnel (see Figure 5). This organization not only helped the authors to narrow the RQ, but further mirrors the logical thematic progression. The approach allows to first recognize the underlying issue that is central through the study and second to identify the mechanisms that can effectively address this issue. Thus, an understanding of each level is elemental to the one that follows.

The literature review begins with a general examination of the topic of FI to develop a nuanced understanding of the field. Subsequently, a delineation of the topics of DFS, MM as well as fintech, gradually specifies the research area. Thereby, a general overview of the issues and tensions that lie behind financial services in developing countries can be developed, all of which are relevant to the RQ. The RQ focuses on the future of MM in Nigeria from the perspective of local fintechs. This demonstrates the importance of establishing a status quo as a starting point for further elaboration and analysis by mapping out the characteristics and underlying mechanisms related to the specific topic areas.

Figure 5: Structure of the Literature Review



3.1 Financial Inclusion

3.1.1 Definition

For many people in most part of the developed world, it is hard to imagine that one's wealth consists of saved cash stored under the mattress, some animals and maybe a few pieces of jewelry – savings that are at a high risk of getting lost and yield no interest. However, this is the reality for a considerable number of underprivileged individuals who most of the time live in emerging or developing countries in rural areas with little to no access to a bank account and other formal financial services such as savings, credit, and insurance. As an example, in case of unforeseeable cash short comings, people living under these circumstances must rely on informal, sometimes dubious, moneylenders that ask for unreasonable interest rates, pushing loan holders even deeper into poverty. (Bill & Melinda Gates Foundation, 2021)

The only way out of this vicious cycle of poverty is by providing affected people with suitable banking products and services that are tailored to their requirements. The provision of financial products and services to the unbanked is referred to as FI. The World Bank (2021) defines FI as the situation in which "individuals and businesses have access to useful and affordable financial products and services that meet their needs – transactions, payments, savings, credit and insurance – delivered in a responsible and sustainable way".

3.1.2 Who are the unbanked and why are they unbanked?

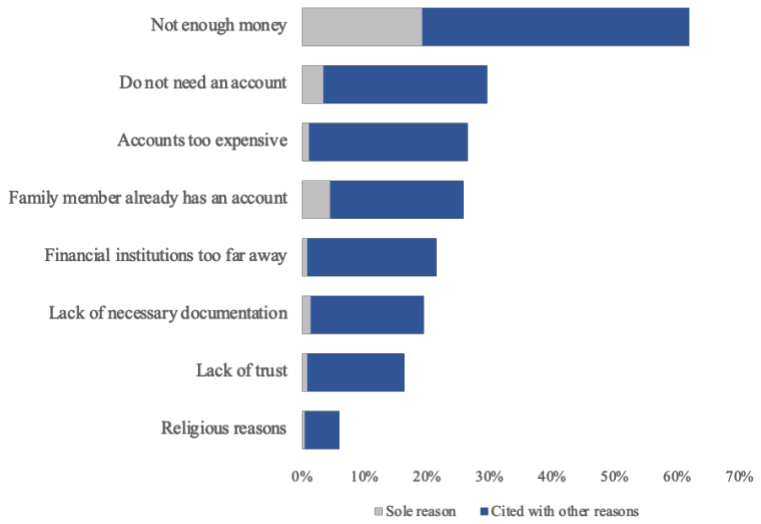
The Global Findex Database (Demirgüç-Kunt et al., 2018) has been tracking the FI development since 2011. From 2014 to 2017, 515 m adults worldwide opened a bank account and moved forward from financial exclusion which demonstrates the improvements that have been made in giving destitute population segments access to financial services. However, 1.7 b[1] adults still do not have a bank account, which is 31% of the world's adult population. A significant number of unbanked adults live in Sub Saharan Africa, where 57% of the population is lacking a bank account (Statista, 2018). Evidently, the unbanked population is disproportionately poor, female, youthful, inadequately educated, and unemployed (Demirgüç-Kunt et al., 2018; Sarma & Pais, 2008). Looking at these characteristics, it becomes apparent that insufficient funds through poverty, low education and, thus, unemployment is one of the main reasons why unbanked people are not able to open an account –

[1] As of 2017, which means that the number can be expected to be lower. The Global Findex Database publishes updated data every 3 years. However, since 2018 no new data has been published.

without any money, no bank account is required to store it. This is also reflected by a survey conducted by the World Bank questioning people why they don't have a bank account. The top three obstacles, "not enough money", "do not need an account", and "accounts too expensive", that keep people from opening an account can be related to insufficient funds (see Figure 6). Therefore, Fanusie (2021) argues that the condition of being unbanked is merely a consequence of the underlying issue that low-income segments are incapable of engaging in the labor or business market.

While the first six reasons insinuate a lack of access, the last two describe a more self-inflicted financial exclusion (see Figure 6), meaning that people may have access to a bank account but deliberately choose not to make use of it because of lack of trust or religious reasons (Er & Mutlu, 2017; Jouti, 2018).

Figure 6: Cited barriers to account ownership



Source: own illustration, adapted from Demirguç-Kunt et al., 2018

3.1.3 Unbanked vs Underbanked vs fully banked

The road to being fully banked is long and even in developed countries it has not always been accomplished. In the US, for instance, about 20% of households are considered unbanked or underbanked (Lochy, 2020). Until now, mainly the terminology of being 'unbanked' has been used. No present account ownership and a lack of access to any kind of traditional banking services for a number of reasons delineate this state. The majority of people that can be associated with this situation

live in developing countries. (Andersson-Manjang & Naghavi, 2021; Demirgüç-Kunt et al., 2018; Lochy, 2020) However, a phenomenon that is more frequently apparent in some developed countries is the circumstance of being underbanked. In this case, affected individuals "have a bank account but often rely on alternative financial services such as money orders, check-cashing services, and payday loans rather than on traditional loans and credit cards" (Downey, 2020). This can have several reasons such as traditional banking services being unaffordable for these groups of people or because they are simply not granted to them because they are not able to meet banks' risk management requirements. Another reason might be financial illiteracy where people have difficulties grasping the complexity of some banking products and are unaware or misinformed about different alternatives. (Lochy, 2020)

Even though, unbanked households are the primary concern in developing countries, financial services that are introduced to these customer segments should also address the reasons for why people remain underbanked. Newly introduced financial services to the unbanked should be seen as a gateway to products and services that allow them to be fully banked at some point in time and to avoid the risk of them being stuck in a state of underbanked (The World Bank, 2021; UNSGSA, 2021)

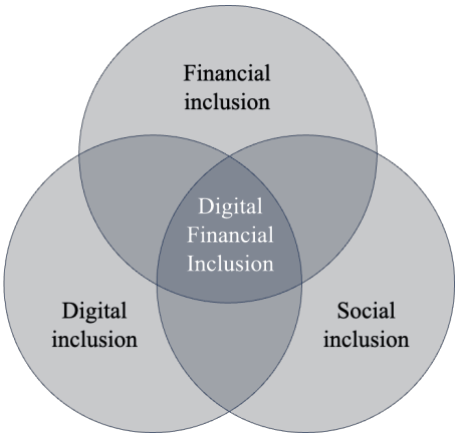
3.1.4 How to financially include the financially excluded

FI has become one of the most pressing issues to be addressed by the international community including governments, international initiatives and non-profit organizations and private companies due to its substantial influence on economic growth in developing countries (Sharma & Kukreja, 2013; UNSGSA, 2021). Therefore, it has been determined as a key facilitator in the attainment of 7 of the 17 United Nation's Sustainable Development Goals (SDGs) (Aziz & Naima, 2021; The World Bank, 2021; Triodos, 2021). In this context, it is essential to regard FI as an enabler and not as *the* cure against poverty and inequalities (UNSGSA, 2021). FI is effective in providing underprivileged households with the tools that give them an opportunity to, for instance, safely store their generated income, be better prepared to deal with unanticipated downturns, potentially invest in the future by building up valuable assets or a business and devote resources to training and education (FINCA, 2021; Sharma & Kukreja, 2013; The World Bank, 2021; UNSGSA, 2021). All of these aspects have a long-term and sustainable impact on people's financial stability and spending ability.

Countries have been taking a variety of initiatives to address the FI agenda, such as granting mobile banking licenses to non-financial institutions, administering digital IDs and novel KYC

procedures, which ease the setup for opening an account, and using government payments to encourage people to consider an account and to accustom them to the regular utilization of such (The World Bank, 2021). For DFSs – namely mobile network providers, banks and third-party providers in the form of fintechs – effectively achieving FI of the unbanked requires them to find innovative ways to reach those customers in collaboration with each other, but also governments and other public or private institutions (ACI, 2019; UNSGSA, 2021). The Bill & Melinda Gates Foundation (2021) advocates that developed financial products, services and systems have to fulfil the criteria of accessibility, reliability, value, affordability, profitability and interoperability. A key driver in this context is the adoption of mobile phones and other digital technologies (UNSGSA, 2021). In fact, in emerging countries FI has been forecasted to take the form of a digital financial inclusion (DFI) facilitated by digital platform accessed through mobile phones instead of traditional banking channels (ACI, 2019; UNSGSA, 2021). Aziz & Naima (2021) suggest that DFI is threefold arguing that FI is very closely connected to digital inclusion and social inclusion (see Figure 7). DFI requires, firstly, offering financial access to basic financial products such as a mobile account and increasing financial literacy (FI). Secondly, building appropriate digital networks and training people to use digital devices (digital inclusion), and lastly, providing them with social networks that help them to connect with others and exchange information (social inclusion).

Figure 7: Conceptual framework of digital financial inclusion



Source: own illustration, adapted from Aziz & Naima, 2021

In 2015, Bill Gates (Gates, 2015) forecasted that

> *"[…] by 2030, 2 billion people who don't have a bank account today will be storing and making payment with their phone. And by then, mobile money providers will be offering the full range of financial services, from interest-bearing savings accounts to credit to insurance."*

Even though, the introduction of digital and mobile financial services has been furthering the achievement of this goal, there is still a long and challenging road ahead for service providers demanding them to constantly adapt their services to the evolving market dynamics and customer needs. In the following, the literature review will shed light on how digital and mobile financial services are designed and gives a deeper understanding of the composition of the MM and fintech sector and their impact on developing and emerging countries.

3.2 Digital Financial Services

As a broad definition, DFS can be described as "financial services which rely on digital technologies for their delivery and use by customers" (Pazarbasioglu et al., 2020). By leveraging information and communications technologies (ICT), which include applications and platforms accessed via mobile devices, financial services such as payment, remittances and credit can be transferred through more cost-efficient digital channels (David-West, 2017; David-West et al., 2018). Traditional financial institutions have been digitalizing their services for a long period of time; however, a more disruptive transformation of the banking industry could only be observed in more recent days. Traditional financial institutions had been dominating the market empowered by strong customer trust and high entry barriers for new entrants established by regulatory requirements leaving little opportunity for new DFSs to gain market share and to offer more innovative financial products. The growing distrust in traditional financial institutions after the financial crisis and the digital transformation advancing in other industries opened the market for less regulated and technology based non-banks. They have been able to offer more affordable, more user-friendly, and timely banking products and services through the use of fintech. (Saal et al., 2017)

Fintech is characterized by "digital technologies that have the potential to transform the provision of financial services spurring the development of new – or modify existing – business models, applications, processes and products" (Narain et al., 2018).

Such disruptive technologies include (Pazarbasioglu et al., 2020; Saal et al., 2017):

- Web and mobile
- Cloud services
- Application Program Interfaces (APIs)
- Big Data
- Artificial intelligence
- Machine learning
- Digital ID
- Digital Currencies

Some of these technologies are already broadly used in the financial sector (e.g., web and mobile, cloud services, APIs), others have not been established on a bigger scale yet but have the potential to fundamentally redefine the financial industry once the technology is advanced enough (Saal et al., 2017).

Fintech firms describe entities that have entered the banking industry by making use of such digital technologies and are focused on the provision of DFS (Saal et al., 2017). Some fintechs have specialized on developing new financial product solutions in areas such as (Pazarbasioglu et al., 2020; Rana et al., 2020; Saal et al., 2017):

- Payments
- Remittances
- Savings
- Investments
- Personal Financial Management
- Small and medium-sized enterprises
- Lending
- Insurance

Others have aimed at innovating financial processes such as (Saal et al., 2017):

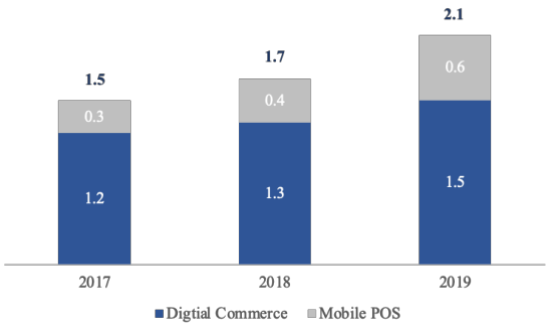
- Anti-Money Laundering (AML) compliance
- Know Your Customer (KYC)
- Credit Scoring
- Underwriting and risk management
- Asset securitization
- Middle- and back-office reporting

In developing countries, DFS have become essential contributors in fostering economic growth and alleviating poverty (Karlan et al., 2016; Muthiora, 2015; Sassi & Goaied, 2013). Considering the fact that the mobile phone and internet penetration in emerging countries often surpasses the bank branch distribution, alternative digital financial product solutions provided by non-banks have been

successful in financially including a growing share of the unbanked population (Nartey & David-West, 2015).

Digital payments, lending and remittances have experienced a considerable growth in recent years. In digital payments a distinction between digital commerce and mobile point-of-sale (POS) should be made, where digital commerce reflects B2C payment transactions in e-commerce processed via different channels (e.g., credit cards, direct debit, invoice and online payment providers such as AliPay). Mobile POS on the other hand describes payment transactions conducted through mobile wallets (e.g., M-Pesa). (Agur et al., 2020) Between 2017 and 2019, the value of digital payments in digital commerce in emerging and developing countries grew by 25% from $1.2 trillion to $1.5 trillion (see Figure 8). With only $613 b, the value of digital payments made through mobile POS is notably smaller, but, also here, an undeniable growth of 100% has been registered in the same period (see Figure 8).

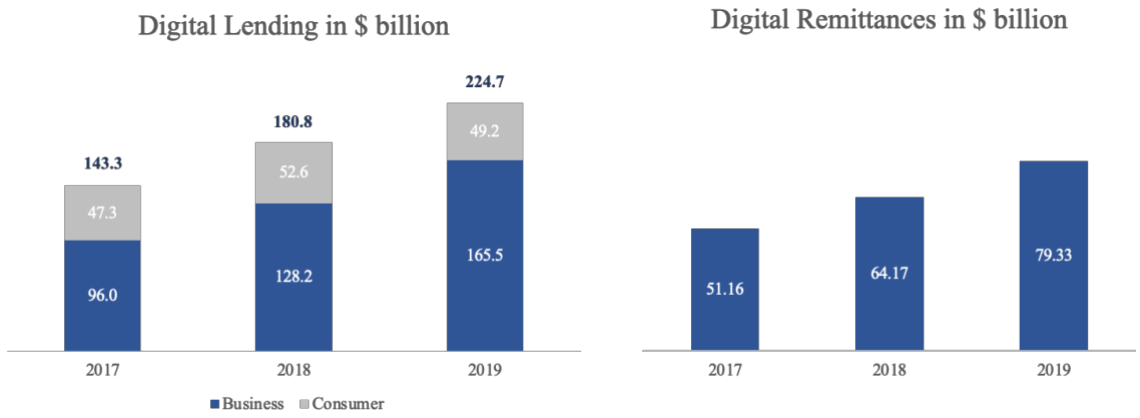
Figure 8: Value of digital payments in emerging and developing countries in $ trillion (2017-2019)



Source: own illustration, adapted from Agur et al., 2020; Statista, 2021b

In digital lending and remittances, a comparable growth trend can be observed in emerging countries. The value of digital lending executed through online platforms by both institutional and private investors to SMEs and individuals increased by 57% from 2017 to 2019 (see Figure 9). The value of digital cross border money transfers (remittances) rose by 55% over the same period (see Figure 9).

Figure 9: The value of digital lending and digital remittances in emerging and developing countries (2017 – 2019)



Source: own illustration, adapted from Agur et al., 2020; Statista, 2021c, 2021a

During the COVID-19 pandemic, the application potential of DFS gained a renewed importance. As people had to follow social distancing guidelines to slow down the spread of the virus, DFS allowed both financially included but especially the unbanked population to receive the financial support mostly in form of government payments (e.g., tax refunds, salaries, pensions, emergency assistance, social programs) which were vital for the survival of their household (Agur et al, 2020). Due to the fact that people were forced to utilize DFS in some instances during COVID-19, this period is predicted to expedite the development and adoption of DFS (Agur et al., 2020; Muthiora, 2020; Pazarbasioglu et al., 2020).

However, in order to spread the use of DFS and establish its usage on a larger scale in regions of emerging countries where they have not been properly developed yet, a number of prerequisites need to be fulfilled. The most important factors are, firstly, a comprehensive and reliable digital infrastructure capable of delivering frictionless internet and mobile connectivity particularly in more remote areas, where the percentage of financially excluded people tends to be higher than in urban areas (Agur et al., 2020; David-West, 2017; Finau et al., 2016; Parada & Bull, 2014; Saal et al., 2017). A sudden transition to DFS without the previous provision of a digital infrastructure and an associated education of its usage makes it challenging for the more remote, poor, and elderly population to take part in the FI through DFS (Agur et al., 2020; Lauer & Lyman, 2015). Secondly, it is inevitable for emerging countries to introduce appropriate legal and regulatory frameworks that facilitate innovation and further development of DFS. Such policies should allow the setup of a potent third-

party agent network providing access in regions with low formal banking penetration (Agur et al., 2020; David-West, 2017; David-West et al., 2018). In addition, as important as a widespread adoption of DFS is, the introduction of proper customer protection and AML schemes should not be neglected to diminish the risk of cybercrime and privacy or security breaches, and opportunities for financial fraud (Agur et al., 2020; David-West, 2017; Rana et al., 2020).

The development of DFS that are adequate to financially include the un- and underbanked in emerging countries is certainly challenging. Nonetheless, if DFS providers are successful in offering digital financial products and services that are tailored to the requirements and arduousness of individual market and customer segments, DFS have the potential of providing developing countries with a substantial boost towards economic prosperity (Bullini Orlandi, 2016).

3.3 Mobile Money

3.3.1 Delimitation and description of products and services

MM is a considerably novel DFS solution that has been expanding swiftly especially in low-income economies contributing notably to the FI movement (Aron, 2018). The technology backing MM "allows people to receive, store and spend money using a mobile phone" (WorldRemit, 2021). These financial services in form of a mobile wallet can be associated with a pre-existing bank account, which is normally the case in more developed economies with a well-established formal banking landscape. Here, mobile financial services are increasingly gaining momentum as (fin)tech companies have entered the market and are consistently updating and optimizing the user experience (e.g., Apple Pay, PayPal) (Aron, 2018; ITU, 2013b; World Bank, 2012). In less developed countries, on the other hand, the traditional banking infrastructure is less mature resulting in many people not having access to a bank account and most financial transactions being cash-based (Aron, 2018). Therefore, in these countries MM services are linked to an electronic account which in turn is connected to the user's mobile phone number (WorldRemit, 2021). As low-income households rarely own smartphones, MM services based on USSD[2] have been the most adopted communication technology, instead of app or internet-based MM services, which are more frequently used in developed economies with a more advanced smartphone and internet penetration (Hanouch, 2015; World Bank, 2012; Appendix 1).

[2] Unstructured Supplementary Service Data – "a communications service controlled by [MNOs], [..] used to provide mobile financial services on […] phones, at low cost, and without requiring access to the user's SIM card" (Hanouch, 2015)

The most common applications of MM services in developing countries are mobile payments and money transfers either person-to-person, consumer-to-business/business-to-consumer, or government-to-person/person-to-government (see Table 2). Recently, some MM providers have extended their product offering with more traditional mobile financial services such as savings, credits, and insurance. (ITU, 2013b)

Table 2: Types of mobile payment services

	Transaction categories		
	P2P	**C2B / B2C**	**G2P / P2G**
Types of mobile payment services	• P2P Payment • Domestic transfer • International transfer (remittances)	• Online/e-commerce • In-store • Bill payment • salaries	• Social security payment • Salaries • Pensions • Taxes

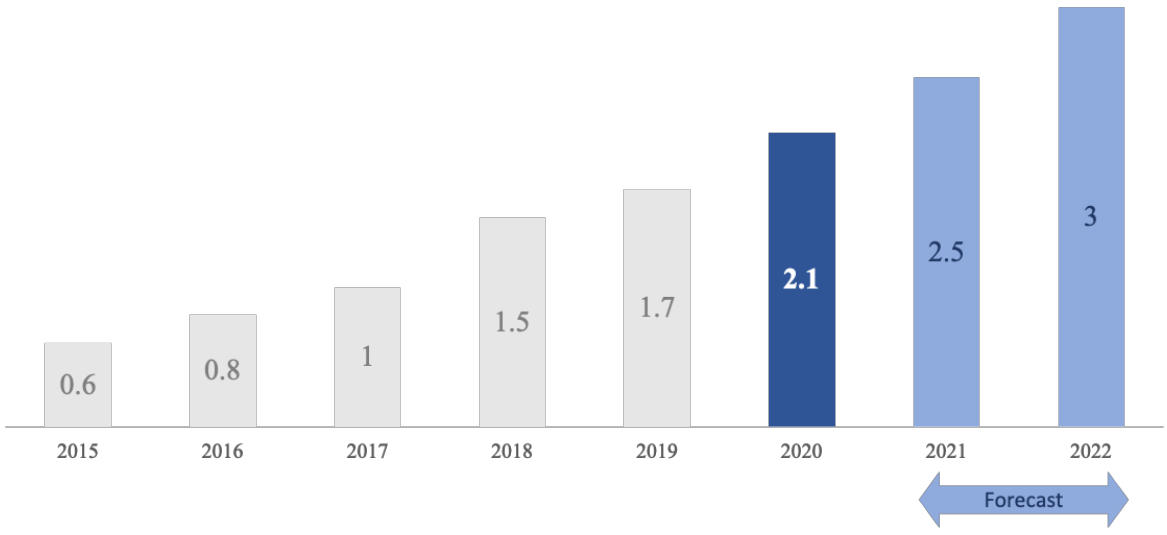
Source: own illustration, adapted from ITU, 2013b; Andersson- Manjang & Naghavi, 2021; WorldRemit, 2021

As traditional cash-in/cash-out services such as ATMs or bank branches are too costly and risky for banks to supply, MM in emerging markets is dependent on an extensive network of agents that can offer cash-in/cash-out transactions in a secure and convenient manner (Aron, 2018; Unnikrishnan et al., 2019). The agent network is based on a "franchise-like model" incorporating small business owners offering MM services in their small shops or kiosks (Aron, 2018; BCG, 2019). According to estimation of GSMA (Andersson-Manjang & Naghavi, 2021) there exist about 5.2 m unique agent outlets around the world of which more than half (2.7 m) are situated in sub-Saharan Africa. These agents earn a small commission for each transaction with an average rate of 0.7% per transaction (Unnikrishnan et al., 2019). In addition to cash-in/cash-out transactions, MM customers can use agent to make "person-to-person fund transfers [P2P], mobile phone airtime purchases and bill payments" (Unnikrishnan et al., 2019).

3.3.2 Key facts and figures

Worldwide, there are over 310 MM services available in 96 countries, though the majority of users live in Africa, Asia and Latin America (Andersson-Manjang & Naghavi, 2021; WorldRemit, 2021). In recent years the MM industry has experienced significant growth. In the past 5 years, the monthly active user base grew by 200 m hitting the 300- million-mark in December 2020. Compared to that, in the previous 10 years only 100m monthly active users could be acquired. (Andersson-Manjang & Naghavi, 2021) Naturally, COVID-19 positively contributed to the adoption of MM services in emerging countries. With the population having to abide to social distancing rules, cash-less money transfer alternatives were rapidly adopted. In 2020, more than 136 m people newly registered to a MM account, which represents a growth rate of 12.7%, substantially surpassing a previous forecast of 6.4%. The transaction value rose by 22% in the last year resulting in a total value of $767 b and an average daily value of $2.1 b. The daily value is expected to grow further in the following years surpassing $3 b of processed transaction value by 2022. (Andersson-Manjang & Naghavi, 2021); Figure 10) The fastest growing and biggest geographic markets in the MM industry are Sub-Saharan Africa followed by South-East Asia. Of the 1.21 b globally registered MM accounts, 548 m are registered in Sub-Saharan Africa. Moreover, the region made up 43% of the total growth of newly registered accounts in 2020. (Andersson-Manjang & Naghavi, 2021)

Figure 10: Total mobile money value processed per day (2015 – 2022) in $ billion



Source: own illustration, adapted from Andersson-Manjang & Naghavi, 2021

3.3.3 Implications of Mobile Money Services

MM services have proven to have major benefits crucial to improving financial resilience of its users and to reducing a number of market failures materializing in emerging economies. First, when considering financial resilience, the introduction of MM can be viewed as a gateway to contiguous financial services such as savings, credit and insurance vital for lower income groups to exit the vicious cycle of poverty and set up sustainable livelihoods with improved financial security and flexibility. MM enabled savings facilitate the accumulation of reserves for times of unreliable cash inflows. At the time, these savings can be used for expenditures required in business, household, or education. MM enabled credits allow customers to react on unexpected expenses or lucrative investment opportunities. Lastly, MM enabled insurance in form of microinsurance has been capable of absorbing financial shocks of unexpected events such as illness or natural disasters (e.g., flooding) potentially jeopardizing families' livelihood. (Andersson-Manjang & Naghavi, 2021; The World Bank, 2021)

When it comes to improving market failures, MM services, firstly, scale down transaction costs in terms of travel and waiting time, coordination costs and costs of leakages (e.g., stolen cash) (Aron, 2018). Secondly, they ameliorate transparency by diminishing asymmetric information. As transactions are increasingly moved from "under the mattress" to digital platforms, unbanked customers' financial behavior is finally recorded providing them with a track record which is essential for receiving a credit score and, consequently, a loan. Lastly, MM promotes trade (Aron, 2018). The mix of immediate digital payment both online but also on the spot and the progressing access to formal banking services such as savings and credit enhances business investment and labor decisions (Suri & Jack, 2016).

3.3.4 MM Value Chain Model Types

Generally, MM services operate through a variety of business models depending on the geographic location, the regulative framework and population size (ITU, 2013a). Still, three overarching models can be observed: The bank-led model, the MNO-led and the third party-led model (ITU, 2013a).

In the bank-led model, a bank typically offers mobile services supplementary to its traditional financial products and services. In most cases, an MNO acts as the channel provider for the facilitation of both domestic and international MM transfers. (Chironga et al., 2017; ITU, 2013a; Osafo-Kwaako et al., 2018) Yet, as this model requires a proficient banking infrastructure, it has not been very effective in reaching unbanked populations.

In emerging countries, with a less evolved banking infrastructure, MNO-led models have been very successful in providing the unbanked with basic financial services (ITU, 2013a). Their advantage is that through leveraging their already existing customer base and far-reaching agent networks, MNOs are able to offer financial services at a considerably lower cost and are more convenient to access than bank-led models. In MNO-led models, banks, on the other hand, primarily focus on settlements and act as a deposit holder (Creemers et al., 2020; ITU, 2013a; Osafo-Kwaako et al., 2018). Comparing the dissemination of both models in developing economies, it becomes evident that MNO-led MM providers such as M-Pesa and MTN Money hold 5 to 10 times larger customer base than their bank-led opponents (e.g., FNB or Equitel) (Chironga et al., 2017); Table 3).

Table 3: Examples of MM application in emerging countries

M-money application	Countries implemented	Main features	Business model
FNB	South Africa, Botswana, Swaziland, Lesotho, Zambia	• P2P transfer • Withdraw and deposit money • Buy airtime • Pay for goods and services	Bank – led
Equitel	Kenya	• P2P transfer • Buy airtime • Microinsurance	Bank – led
M-Pesa	Kenya, Tanzania, South Africa, Lesotho, Tanzania, Ghana, Mozambique, Egypt, Afghanistan	• P2P transfer • Withdraw and deposit money • Pay school fees • Pay electricity bills • Pay for goods and services	MNO – led

MTN Money	Uganda, Ghana, Cameroon, Congo, Ivory Coast, Rwanda, Benin, Guinea Bissau, Liberia, South Africa, South Sudan, Swaziland, Zambia, Iran, Yemen, Syria	• P2P transfers • Withdraw and deposit money • Buy airtime • Check balances • Pay utility bills • Pay for goods and services	MNO – led
Paga	Nigeria	• P2P transfer • Withdraw and deposit money • Buy airtime • Pay bills	Third party-led

Source: Equitel, 2021; FNB, 2021; ITU, 2013a; MTN, 2021; Paga, 2021; Safaricom, 2021

Finally, the third party-led model is characterized by banks, MNOs and third-party providers creating a collaborative ecosystem gaining advantage from each other's strengths and compensating for each other's deficiencies. Third party providers in these scenarios are commonly (fin)tech companies or internet players that have entered the market with new and innovative payment and money transfer solutions. Examples of payment systems at scale are PayPal or Alipay. Principally, third party-based MM providers are based in more mature markets with an adequate banking infrastructure, a lower percentage of financially excluded citizens and more digitally versed customers. (ITU, 2013a) However, one exception in developing countries is Paga in Nigeria. Here, MNOs were not able to apply for a mobile banking license for a long time. Therefore, fintech start-ups such as Paga in collaboration with banks and MNOs, have become high-standing payment platforms enabling customers to send money P2P and pay online for goods and services (Chironga et al., 2017; Munshi, 2020). In 2020 alone, Paga handled a transaction value of $2.3 b (Onu, 2021; Table 3).

It should be noted that in order for mobile MM to persist in the long-term in emerging countries, the concept of interoperability, meaning that MNOs, banks and third-party providers enter partnership building multilateral financial ecosystems will become indispensable (David-West et al., 2018; ITU, 2013a). Remaining competitive demands a "set of diverse and hard-to-develop capabilities, including broad marketing and distribution, management of agent sales forces, systems

and analytics, rapid product development, and financial intermediation" which none of these MM provider types can acquire on their own (David-West et al., 2018).

The significance of MM in emerging countries, its impact on the unbanked population and its potential of encouraging an unprecedent economic growth in these countries has been well illustrated in this segment. The biggest challenge for MM providers remains to keep up with the rapid growth rate, to continue to design financial products that are tailored to the needs and constraints of the financially excluded and to find ways of opening up their platform to build comprehensive multilateral and interoperable MM systems.

3.4 Fintech

The term "fintech" has long been used both in academia and practice. Nevertheless, no uniform definition exists, and its use often remains subjective and ambiguous (Schueffel, 2016). Therefore, it is relevant to establish a common understanding of the term and outline its characteristics.

3.4.1 Definition

"Fintech" is a neologism of the words "financial" and "technology" and describes the intersection between finance and technology (Gomber et al., 2017). The birth of the term is often dated to a project called "Fintech" that was initiated by the Citigroup (Schueffel, 2016). However, in fact the phrase dates to 1972, when Abraham Leon Bettinger, vice president of Manufacturers Hanover Trust, used it in a scholarly article. He provided the following definition for the term: "FINTECH is an acronym which stands for financial technology, combining bank expertise with modern management science techniques and the computer" (Bettinger, 1972, p. 62). Since then, a plethora of definitions have been formulated. Citing the Oxford dictionary, the term fintech refers to "Computer programs and other technology used to support or enable banking and financial services." (Oxford English Dictionary, n.d.). In his meta-study, Schueffel (2016) compared a variety of existing definitions and defined fintech as "a new financial industry that applies technology to improve financial activities." (Schueffel, 2016, p. 45). Furthermore, he stressed the ambiguity of the term, insisting his definition was only a starting point.

Fintechs have several characteristics, which are outlined below to further sharpen the understanding of the term. Fintechs are characterized by offering innovative and personalized

financial services and products (Allen & Overy LLP, 2019; Chuen & Teo, 2015; Kim et al., 2016). This perspective highlights the themes of customer centricity and a thorough understanding of customer needs (Dany et al., 2016). Other authors relate the term to a specific business model (Drummer et al., 2016; Gabor & Brooks, 2017; Gulamhuseinwala et al., 2015), that is based on the availability of ubiquitous communication, specifically via the internet and automated information processing (Gomber et al., 2017). In addition, the term can refer to an entire industry (Kim et al., 2016). In aggregate, these approaches have in common that fintech comprises the "usage of digital technologies such as the Internet, mobile computing, and data analytics to enable, innovate, or disrupt financial services" (Gimpel et al., 2018, p. 247).

Traditional financial institutions, one the one hand, offer a combination of financial products. Fintechs, on the other hand, create value by unbundling financial services to address one specific need (Gimpel et al., 2018; I. Lee & Shin, 2018). This allows categorizing fintech companies into functional domains. These domains include (Chuen & Teo, 2015; Dany et al., 2016; Dietz et al., 2015; Drummer et al., 2016; Gulamhuseinwala et al., 2015):

- Account management
- Asset management
- Crowdfunding
- Cryptocurrencies
- (Digital) payment and money transfer
- Financial planning
- Insurance
- Investments and savings
- Lending and financing
- Peer-to-peer lending
- Trading

Besides classifying fintechs by domain, another differentiation can be drawn. Following Christensen's (1997) theory of disruptive innovation, Lee (2015) distinguishes between "sustaining fintech" and "disruptive fintech". The former stands for established financial services providers that aim to protect their market position using information technologies through incremental innovations. The latter for new companies and start-ups that challenge established providers offering new products and services (Gomber et al., 2017).

Fintechs can be diverse types of players, such as incumbents (e.g., banks or insurance companies), non-financial services companies (e.g., technology companies) or start-ups. Moreover, the activities can be organized in an array of business models, i.e., B2B, B2C, C2C, etc. While API

and cloud technologies are most used by FinTech companies, they can also leverage data analytics and blockchain. (Kola-Oyeneyin et al., 2020)

In recent years, the industry witnessed immense growth globally (Dietz et al., 2015; Gulamhuseinwala et al., 2015). Prior to the outbreak of the COVID-19 pandemic, the total value of investments into fintech companies worldwide grew at a CAGR of 68% between 2017 and 2019, reaching $168 b in 2019 (KPMG, 2021). Increasingly, fintech startups, as well as large IT companies, are entering the financial services market attracting customers. According to Gomber et al. (2017), this development is based on three main reasons: First, by offering new products and services, fintechs meet customer needs that were previously unmet or inadequately met by traditional financial institutions. Second, by leveraging new technologies, fintechs created new opportunities for selling products and services. Third, technology companies often have a culture that differs significantly from that of traditional players in the financial industry. They are characterized by a high degree of agility, innovativeness, and dynamism, placing increasing pressure on established peers in the industry (Gomber et al., 2017).

In summary, fintechs are innovative startups that emerge at the intersection of technology and finance and offer easy-to-use financial products based on one specific value proposition (Gomber et al., 2017).

3.4.2 Fintechs in developing countries

When people think of fintech, they tend to think of the Western context. Well-developed economies, supporting infrastructures, an intact venture capital (VC) industry and flexible market regulations - conditions that are necessary for fintech formations and often met in developed countries (Buckley & Webster, 2016). In recent years, however, fintech formations and investments have soared in developing countries (EMPEA, 2020). In economies where not only these facilitating structures are generally not in place, but where various other variables create an environment for fintechs that is entirely different from that in developed countries. Although each developing economy has its unique landscape, general challenges can be identified.

First, geographical barriers exist that result in an insufficient supply of formal financial services, specifically banking services in rural areas. This is due to the lack of access between the rural population and brick-and-mortar financial institutions. Characteristics of rural communities include low population density and thus lower demand than in urban areas, as well as security concerns. For banks, this translates into transaction costs and increased monitoring costs, in addition

to the high fixed costs for bank branches. Given the lower demand, this cost situation is unprofitable. In general, the cost of doing business is relatively high in developing markets (David-West et al., 2020). Consequently, competition between financial institutions in these areas is low, limiting the supply of formal financial products. (Buckley & Webster, 2016).

Second, as mentioned earlier, we see that approximately 1.7 b adults worldwide, virtually all of them from developing countries, are financially excluded and do not use formal financial products. One reason for this is that banks transfer their high costs to the customer by raising interest rates. Higher interest rates are also based on the nature of the dominant economy in developing countries: agriculture. Fluctuating weather conditions lead to unpredictable crop yields, resulting in irregular income and uncertainty about whether and when loans can be repaid (Buckley & Webster, 2016). Apart from interest rates, banks impose more restrictive loan conditions (Pedrosa & Do, 2011). These include relatively high minimum account balance requirements and strict repayment schedules. Apart from these obstacles, formal identity verification can be another barrier (Buckley & Webster, 2016). Thus, opening and maintaining a bank account involves high costs and obligations for the customer. Either consumers can handle those, or they remain unbanked and resort to informal financial products.

Third, low institutional quality is a challenge and another factor driving an informal economy (Buckley & Webster, 2016). Institutional quality is partly determined by a country's level of development (Alonso & Garcimartín, 2010) and is positively related to access to financial services (Blades et al., 2011; Rojas-Suarez, 2010). It includes the extent of compliance with the rule of law, the level of protection for investors, the strength of contract enforcement, and the quality of property rights (Chong & Calderon, 2000; Levchenko, 2007). Low institutional quality typically drives a reinforcing informal economy, as banks are incentivized to take financially exclusive actions due to the lack of profitable opportunities (Barry & Tacneng, 2014).

Fourth, the low level of financial and digital literacy mentioned earlier in Chapter 3.1 pose a challenge. Financially literacy enables customers to make informed financial decisions regarding saving, investing, and borrowing options (Klapper et al., 2015). The lack of ability to understand basic financial concepts must be considered when designing financial products. While in developed countries, the typical fintech customer resembles developers, i.e., a tech-savvy, urban individual with an above-average income, this is not true in the developing world, especially in high-potential rural areas (Buckley & Webster, 2016).

Finally, the factor is the higher penetration of feature phones compared to smartphones in rural areas (David-West et al., 2020). Many new fintech services require users to own a smartphone, as certain services do not run on basic mobile phones. Given limited income, acquiring a smartphone remains difficult for the rural population, thus smartphone-based services continue to exclude the vast population living outside Nigeria's urban and tech-savvy hubs such as Lagos. (GSMA, 2020)

Given the above challenges faced by people and financial institutions in developing countries, fintechs have a special role to play. The role to pave the way for a more inclusive financial system by leveraging digital channels. Building products that address the needs of individuals and businesses across income levels, they can provide solutions to enduring problems to empower financially isolated communities. (Buckley & Webster, 2016)

According to EFInA, fintechs in developing countries can be categorized into one of three distinct eras, differing in their strategic focus. The early players, fintech 1.0, have a B2B focus enabling institutions to optimize their offering. In the context of driving FI, the more recent fintechs are even more central. These include the following generation, fintechs 2.0, which tend to focus on specific verticals, geographies, or customer segments. Finally, the most recent emergence is fintech 3.0, which orchestrate ecosystems and aim to offer customers a wide range of services beyond financial services. They can also be referred to as “techfin” companies i.e., technology companies with existing customer bases that offer financial services as an add-on offering. (EFInA, 2020)

In summary, many potential customers in developing countries are exposed to an increased risk of either being financially excluded due to lack of capital and/or education or having to bear the burden of increased costs. For fintechs, this means that developing economies represent a far more challenging terrain than developed economies. However, this higher risk comes with a high potential reward. Tapping into the vast unbanked market to drive FI remains very attractive for fintechs. The vehicle through which fintechs have the best chance of fulfilling their role of providing financial services to consumers at the bottom of the pyramid (BoP) may be MM (AFI, 2018; David-West et al., 2020).

3.4.3 Opportunities for fintech in the mobile money industry

After financing, (digital) payments is the second most important segment for fintech (Haddad & Hornuf, 2019). By enabling individuals and businesses to transfer money via their cell phones, they address key challenges such as high costs of storing and transferring money, security concerns of carrying cash, or distance issues (Buckley & Webster, 2016). In some ways, mobile phones have

democratized financial services and serve as an entry point to formal financial services (Klapper & Singer, 2014). When a fintech is significantly involved in providing MM, the setup can be called a "third party" archetype in the form of a collaborative ecosystem (Chironga et al., 2017). As introduced earlier, in this case, the fintech takes over three of five elements of the value chain, i.e., that of the e-money issuer, providing the payment platform and its own agent network.

There are several opportunities for fintechs in the MM industry. One key opportunity is that fintechs can drive FI through MM services. In 2020, there have been 1.2 b registered MM accounts worldwide - a large share in rural areas (GSMA, 2021b). A significant factor linked to this is the ubiquity of feature phones in developing countries. Leveraging the existing mobile phone infrastructure, fintechs' financial products and services can reach the otherwise disconnected rural population.

When discussing opportunities for fintechs in MM, the focus must be on SSA, the epicenter of activity in the MM cosmos. As outlined above, the region accounts for nearly 50% of all registered MM accounts, and in 2017, 24% of adults in SSA owned a MM account, nearly double the number in 2014. Yet penetration in Africa is very uneven, so MM can still reach a significant number of people in rural areas.

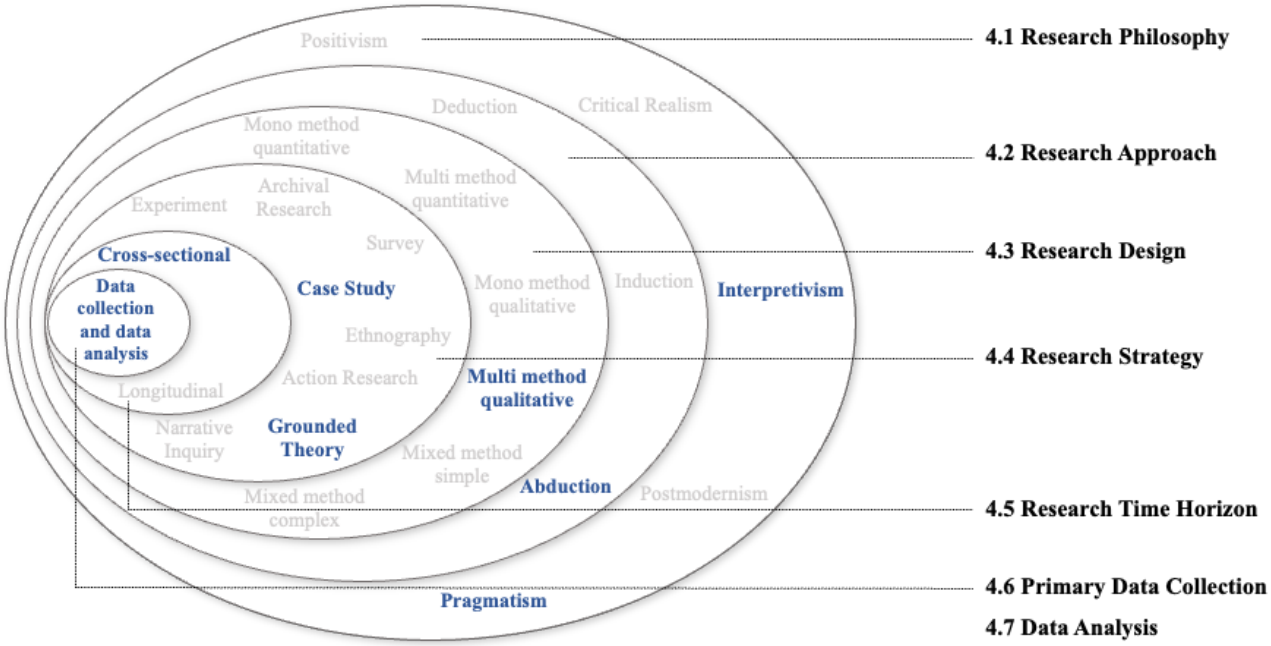
Finally, the scope of fintech investments in Africa and especially in MM keeps growing. In 2019, according to Africa-focused fund Partech, a total of $2 b flowed into African startups (Partech, 2020). After a slight decline in 2020 due to the COVID-19 pandemic, VC investment in the continent is expected to reach up to $2.8 b in 2021 – a record high (AfricArena, 2021).

Proof that financial technology can be profitable in developing countries can be seen in the success story of M-Pesa in Kenya. M-Pesa, the MM platform introduced earlier, is highly profitable while integrating people into the formal financial system and successfully fighting poverty (Voorhies et al., 2013). Founded in Kenya in 2007 and owned by Safaricom and Vodafone, the company has lifted 194,000 households, or 2% of Kenya's population, out of poverty, according to a study by MIT professors (Suri & Jack, 2016).

Chapter 4: Methodology

To answer this thesis' RQ the authors have developed a correspondent methodology. Based on Saunders, Lewis, and Thornhill (2016) research onion (see Figure 11), firstly, the research philosophy, the research approach, the choice of research design, the research strategy and the time horizon will be presented. Afterwards, the focus will move on to the procedure of the primary data collection as well as a description of the authors' approach in the analysis of the data.

Figure 11: Research Onion (terms used in this thesis marked in blue)



Source: Own illustration, adapted from Saunders et al. (2016)

4.1 Research Philosophy

To develop an appropriate solution to the RQ at hand several assumptions will have to be made (Burrell & Morgan, 1979). The research philosophy will guide the authors in defining their beliefs and assumptions in their development of new knowledge (Saunders et al, 2016). Moreover, it will influence the authors' approach and understanding of the research project and will help ensuring an overall coherence (Johnson & Clark, 2006). Research philosophies can be differentiated in the types

of assumption that are made. The types of research assumption include epistemological, ontological, and axiological assumptions. Epistemology refers to how adequate knowledge can be defined and communicated. Ontology concerns assumptions on realities, how research objects are regarded and evaluated. Lastly, axiology describes the authors' values and ethics and their role in the research project. (Saunders et al., 2016)

In business and management research, the five most relevant research philosophies are positivism, critical realism, interpretivism, postmodernism and pragmatism (Saunders et al., 2016).

Positivism is especially relevant in natural sciences, as researcher following this philosophy are trying to develop law-like rules based on data and fact and without the influence of human bias (Saunders et al., 2016). This philosophy, however, is not applicable in this thesis, since to define a realistic future picture of the MM industry the authors will have to include their own and experts' interpretations into their study. This is also because there is not enough hard data available for analysis.

A critical realism view explains present observations by examining how they have changed historically (Reed, 2005). However, the focus of this study is to identify future trends and how they will shape the future of the MM market. Though, historical data may be relevant to some degree, for instance when looking at past development in economic or socio-cultural factors or when evaluating the efficacy of past measures in Nigeria's FI agenda, a close examination of the past will not necessarily play a central role in giving insights for the future.

The purpose of a postmodernism motivated study is to profoundly question instituted knowledge constructs and present new ways of thinking that have been neglected before (Chia, 2003; Kilduff & Mehra, 1997). Though, this thesis intends to present new knowledge to close the identified gap in research by providing novel insights and recommendations on how FSPs, specifically fintechs, can navigate the volatile and dynamic environment of a developing economy, it does not try to challenge any previous research. This is also because there is not a lot of research in this specific field that could have been challenged.

The most suiting research philosophy to this study is pragmatism. Pragmatists acknowledge the varieties of possibilities of how realities can be defined. Therefore, different types of methods and knowledge that support the evolution of the research can be combined in order to show as many perspectives as possible to the solutions of a problem. (Kelemen & Rumens, 2008) Besides, the practical application of solutions plays a vital role in pragmatism (Saunders et al., 2016). This thesis also aims at finding practical solution that can be insightful to businesses in Nigeria's MM market

rather than developing abstract and theoretical frameworks. A strategic forecasting approach has been chosen as it encourages the usage and combination of multiple methods, in this case a scenario analysis with the input of the Delphi technique, to be able to forecast the MM market by including several viewpoints which help to define the industry's future as accurate as possible.

Some influences of the research philosophy interpretivism can also be found in the authors' assumptions. Interpretivists incorporate different perspective in their study in order to "create new and richer understandings and interpretations of social worlds and contexts" (Saunders et al., 2016, p.140). The research project follows the same intend and therefore chose to incorporate the Delphi technique to include and analyze the participants' different perspectives in a structure way. Still, due to the pragmatism practical orientation and mixed methods approach, it remains the primary philosophy of this thesis.

4.2 Research Approach

Approaches in research can be divided into two contrasting extremes: deduction and induction. Thereby, a deductive approach follows the intuition of testing a previously developed theory and is therefore mainly used in natural sciences to define law-like solutions. In the alternative inductive approach, on the other hand, a theory is synthesized, mostly in the form of a framework, based on the collection of data and the investigation of different concepts. It mainly focuses on the use of qualitative data and allows a less rigid methodology than in a deductive approach. This way, an inductive approach leaves more room for alternative explanations and solutions for the RQ at hand. (Saunders et al., 2016)

While this thesis wants to present an accurate future of the Nigerian MM market, it does not intend to declare this solution to be the only true one but rather one alternative interpretation of the data that has been collected. Therefore, rather induction than a deduction would be the suitable approach to apply in this context. Nonetheless, a combination of the two approaches is possible and might also be more in line with the primary research philosophy of this study, pragmatism, that encourages the application of several methods and approaches if it enhances the outcome of the study. Instead of focusing on accomplishing perfect deduction or induction, a so-called abductive approach is applied. This research approach follows an iterative process between analyzing data, forming theories and verifying them (Suddaby, 2006). Though the authors start by exploring different phenomena inductively, they do not adopt their findings as the only truth. Instead, concepts are being assessed and verified by including different perspectives in the analysis and the final findings.

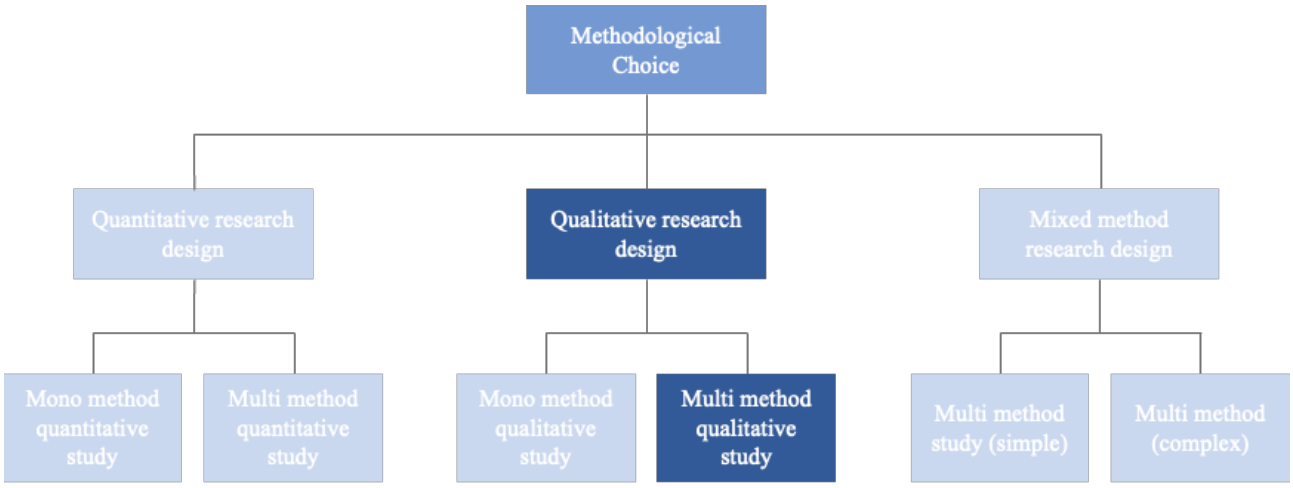
4.3 Research Design

In the methodological choice three different research designs can be distinguished: a quantitative, a qualitative and a mixed methods research design (Saunders et al., 2016, Figure 4). Considering the primary research philosophy, pragmatism, both a quantitative and a qualitative research design would be appropriate. However, as the thesis also shows influences of interpretivism and has an exploratory character, a qualitative research design would be the more reasonable choice (Denzin & Lincoln, 2018; Saunders et al., 2016). Nonetheless, both research designs have been critically evaluated in order to avoid the application of a favorable design (Patton, 1987).

Quantitative research designs are mostly implemented in studies following a positivist's philosophy with a deductive research approach, meaning that the purpose of the data gathered is to test a certain theory (Saunders et al., 2016). Even though the authors considered the use of quantitative data for the modelling of a quantitative forecast of the Nigerian MM market, very early in the project it became obvious that not sufficient quantitative data was available. In addition, it was important to include several perspectives into the analysis from experts outside and inside the industry which would have been more difficult to include in a quantitative study.

Therefore, the thesis will focus on the application of a qualitative research design. This does not only align with the research philosophies of this study but also with its abductive approach as the authors will be required to interpret the participants' subjective input in an iterative process before forming the final theory (Saunders et al., 2016). Within this qualitative research design, the authors will apply both a questionnaire by applying the Delphi technique and interviews with industry participants (see Chapter 4.6). Consequently, a multi-method qualitative study will be applied.

Figure 12: Methodological Choices in the Research Design



Source: Own illustration, adapted from Saunders et al. (2016)

4.4 Research Strategy

The research strategy describes the authors' course of action to find an answer to the proposed RQ. It connects the previously elaborated research philosophy with the consecutive data collection and data analysis. (Denzin & Lincoln, 2011; Saunders et al., 2016) The study's primary research philosophy, pragmatism, often entails the usage of more than one method of data collection to show the full picture to a research problem. The authors chose a multi-method qualitative study, and it is therefore sensible to also combine research strategies to ensure the coherence and to limit the boundaries of the project. The two research strategies considered are Grounded Theory and a case company interview. Both strategies are compatible with an interpretive pragmatism and an abductive qualitative research design. (Saunders et al., 2016)

Grounded Theory especially becomes relevant in the application of the Delphi technique. As the name suggests, theories are developed based on the data at hand. Grounded theory is mostly used in conjunction with the collection and analysis of qualitative data and follows a systematic but flexible process. It encourages the collection of data from in- and outside the Nigerian MM market if it is beneficial to the understanding and interpretation of different phenomena found throughout the process. In Grounded Theory researchers often follow an iterative, or abductive, approach during which the data is collected and analyzed simultaneously. Additional data is collected if needed for the purpose of clarification of potential theorical concepts that have arisen during the researchers' constant data analysis (Saunders et al., 2016). A similar logic is inhibited in the Delphi method, during

which experts' answers are evaluated in one to three rounds both by the experts themselves and the researchers to find comprehensive themes. Therefore, Grounded Theory can be combined with the Delphi technique to a Grounded Delphi Method (Päivärinta et al., 2011).

Some aspects of a case study strategy are applied when analyzing the practical compatibility of the derived future scenarios in form of company case interviews. Generally, case studies serve as an inspection of a topic or phenomenon in a real-life context (Yin, 2014). A case may consider a person, a group, an organization, a process or an event (Saunders et al., 2016). In this thesis, two fintechs, active in the Nigerian MM industry, Paga and OPay, will be examined. By including the case company interviews, the authors do not only have the opportunity to gain valuable inside knowledge on the fintechs' strategic positioning, but also to verify the theories developed based on the Grounded Delphi Method from a practical perspective.

4.5 Research Time Horizon

The research project can be designed as either covering a "snapshot", where data is obtained at particular point in time or as "a series of snapshots" taken at multiple points in time (Saunders et al., 2016, p.200). Implementing a snapshot time horizon is described as a cross-sectional study, while the latter is defined as a longitudinal study. This study only captures participants viewpoints at a certain point in time and does not evaluate the evolution of their perspectives over time. Even though the Delphi technique consists of several rounds, time is not the decisive component. The feedback rounds are held after a short time lag only for organizational reasons as it takes the researchers some time to receive, compile and summarize the participants' answers for the feedback round. The participants' answers in the following rounds are not influenced by the time that has passed, but rather by the content they are asked to evaluate. Therefore, as the authors analyze the participants' input from a point in time rather than their development over a period of time, a cross-sectional approach is employed.

Besides, considering the thesis' framework the time horizon of the Delphi based scenarios also needs to be determined. As this study is intended to be an explorative rather than a descriptive one, a long-term time horizon is the suitable choice (Börjeson et al., 2006). The African MM market is fairly young. It started in 2007 in Kenya with M-Pesa (MNSConsulting, 2017). Since then, several other MM providers, mainly MNOs, have started offering their services in various parts of Africa. In Nigeria, MNOs encountered a scarcity of licenses which is why the MM market is not as advanced compared to other African countries (Munshi, 2020). Considering that the market is still emerging

and taking into account the fast evolving technological and demographic developments that Nigeria is undergoing a time horizon of 10 to 15 years is considered to be a reasonable and long-term enough in order to discover enough novel information without the need of speculations.

4.6 Primary Data Collection

In this thesis, two methods are used to obtain primary data. First, in the scanning phase of the scenario analysis, the Delphi technique is applied for the generation of possible driving forces relevant to the scenarios. For this phase, several experts are invited to participate in two rounds of questionnaires. At a later stage, in the visioning phase, the derived scenarios are put into a real-life setting, and discussed and evaluated in an interview with a case company.

4.6.1 Delphi Technique

The first of the two methods chosen for the primary data collection as part of this thesis is the Delphi technique. This method was already introduced previously as part of futures research. While earlier the central functions and design options were discussed in detail, at this point the technique is examined from a methodological point of view. In particular, the specific design chosen in this thesis will be presented.

Purpose

The primary objective of the thesis under consideration is to develop future scenarios of MM in Nigeria through a joint application of scenario planning and the Delphi technique. In this context, the purpose of the Delphi technique is to generate high-quality data for the scenario construction. Scenarios will be based on the collected opinions, developments and innovations proposed and agreed upon by the entirety or at least majority of experts. It is expert opinion that is often the only available source of information with regard to future issues (Linstone & Turoff, 1975).

Delphi assumptions

The Delphi technique is based on three fundamental underlying assumptions that define the technique and from which the chosen design should be developed: Iteration, anonymity and controlled feedback

(Nowack et al., 2011). Each of these assumptions takes a particular role in the data collection process and will therefore be described in more depth below.

Data collection applying the Delphi technique is conducted through an iterative process. In other words, it is performed in consecutive feedback loops, so-called Delphi rounds. The design decision in view of the iteration therefore refers to the desired number of Delphi rounds. (Nowack et al., 2011)

The second assumption relates to the anonymity of the experts. Anonymity is necessary to avoid the occurrence of negative effects of group communication processes (Nowack et al., 2011). These include, for instance, the "Bandwagon effect", which refers to the fact that opinions of individual experts may be affected by dominant others (Leibenstein, 1950). Thus, the goal should be to keep opinions formal and impersonal to avoid such intimidation. This can be ensured by the researchers acting as a monitoring team and thus being the central point of contact. (Nowack et al., 2011)

The last assumption refers to controlled feedback. To facilitate the flow of communication between experts, researchers should provide feedback in the form of quotes, summaries, or descriptive statistics such as median or mean values. This interim analyses and data processing by the monitoring team increases the efficiency of the communication process and of the Delphi technique overall. (Nowack et al., 2011)

Delphi study design

The design decisions with respect to the Delphi technique are guided by its objective as well as its function within the scenario planning. The objective of the Delphi technique is to generate a comprehensive longlist of trends shaping the future of MM in Nigeria. The objective is further to generate consensus among experts regarding the longlist. In this thesis, consensus is defined as having at least 75% of all participating experts agree with the selection, thus approving that the identified ideas are the most relevant trends that will determine the future of MM in Nigeria.

a) Integration and Delphi functions

Since the focus is on a Delphi-based scenario analysis, an initial decision relates to the type of integration. Derived from the objectives, an integration in the scanning phase of scenario development is most appropriate. The output of this phase is precisely a longlist of relevant drivers and trends.

Subject to the integration, the function the Delphi technique fulfills was outlined above. When integrated in the scanning phase, the function for the study under consideration is that of idea generation, i.e., using the knowledge and different viewpoints of the experts to generate a complete and informed understanding of the future trends. Thus, overall, as suggested by Nowack et al. (2011), the authors decided to integrate the Delphi technique in only one phase of the scenario planning process fulfilling only one specific function. It is integrated within the scanning phase fulfilling the idea-generation function.

b) Delphi rounds

Concerning the number of iterations, two Delphi rounds will be conducted. This decision is based on several reasons. First, in view of one function to be fulfilled, merely two rounds are needed. The experts are neither asked to break down the drivers into two most important nor evaluate implications of specific future scenarios. These would mirror the consolidation and judgment functions respectively. Focusing on one function thus requires less Delphi rounds than considering multiple functions. The second reason relates to research fatigue. This is minimized by conducting two rounds, which in turn ensures a higher response rate and validity of the data (Mitchell, 1991). The aim is to reach a balance between quality of findings and the risk of dropout when the research progresses. Finally, third, the most reliable study value emerges after the first iteration because the main opinion of the study changes over time (Rowe & Wright, 1991; Woudenberg, 1991).

Round 1 includes a brief introduction both to the purpose of the study and to the process of scenario planning that was sent to the participants prior to the distribution of the questionnaire. Subsequently, the questionnaire was sent out with detailed instructions on what the participant was expected to do. Once the answers were received, they were analyzed and processed, which led to the second Delphi round.

In Round 2 the authors had refined the received responses to overreaching topics and the top five most relevant trends based on the number of references and the importance participants placed on the commented drivers. At this point, experts were asked to validate the type of driver and level of importance in each category, (dis)agree, defend their own position, add further information, or develop new ideas. Based on the results of the second round, the authors were able to identify the desired consensus on the most relevant drivers and their degree of relevance.

c) Questionnaire and format

A central element of data collection is the questionnaire (see Appendix 2). It is designed in English and delivered to the experts by e-mail. E-mail contact is used in place of group interviews to ensure the anonymity of the experts. Moreover, this facilitates reaching experts spread across the globe, especially on the African continent. The internationality of experts further explains the choice of English as the preferred language.

In the sense of triangulation, the questionnaire is based on a combination of different methods. The structural starting point is given by the PESTEL-framework (political, economic, socio-cultural, technological, environmental, legal), which, in line with the focus of strategic forecasting, covers the macro perspective (Wilson & Gilligan, 2005). In addition, Porter's five forces are used as inspiration for industry elements that need to be considered, capturing the meso perspective (Porter, 1979). This led to four questions that refer to the industry challenges and opportunities, customer preferences and the industry structure. The meso-perspective can be seen as a corollary of the macro environment, as most of the industry drivers are influenced by macro drivers. Finally, desk work represents the ultimate input source. Pre-surveys will not be conducted, which would have contributed to triangulation, but are not feasible due to the scope and resources of the monitoring team. Overall, the goal is to structure and formulate the questionnaire as neutral as possible.

Regarding the wording, questions are formulated open-ended, with ten questions being included in the questionnaire, one per PESTEL category and four surrounding the meso-environment. Given the idea generation function of the Delphi technique, open-ended questions provide a better basis for creative input compared to closed-ended questions, which already limit the experts (Nowack et al., 2011). The number of questions is chosen with the goal of achieving a reasonable response rate while obtaining a high level of data quality.

In the second round, the authors optioned for a questionnaire configured with the help of Qualtrics, an online survey tool (see Appendix 3). In contrast to the first, answers were expected to be of a smaller scale as participants were solely asked to validate the refined drivers extracted from the first round. Qualtrics made it more convenient for both the participants to fill in the questionnaire as well as for the authors to collect the comments.

Overall, the research will cover the period from March 2021 to June 2021, i.e., four months. This time span is considered to be sufficient to contact and acquire potential participants, set up the questionnaire and conduct both Delphi rounds.

d) Controlled feedback

Given the two Delphi rounds, feedback will be given once. The ideas to be developed should be based on the input of the other participating experts. This is why, the adoption of controlled feedback takes a central role in the study under consideration. Feedback is given as synthesized and aggregated arguments, ideas and quotes. This is most useful due to the open nature of the questions.

e) Participating experts

Finally, a fundamental element of the design of the Delphi technique are the participating experts that form the Delphi panel. There are two aspects to be addressed.

First, the definition of the term "expert" and thus the application of precise selection criteria are important. The lack of a description of the selection criteria is one of the major limitations of Delphi studies (Kuusi, 1999). In this work, multi-perspective selection criteria are used. These include the overall qualification, position, years of work experience, regional provenience and, for academic experts, the number of published articles. In addition, it is constantly assessed whether a potential expert represents a useful addition to the already existing panel. In this context, the criterion of heterogeneity or multi-disciplinarity is crucial. Additionally, the authors aim to focus on experts that are currently not working for a fintech in the MM industry. This is done in order to, first, develop an external view on the industry. Second, this approach allows the authors to validate the scenarios using the case interview without the interviewee being biased by having been part of the Delphi panel. In sum, the chosen criteria are known to be useful to select experts for a meaningful Delphi study, especially in an open-ended question setting. (Nowack et al., 2011)

Second, the size of the panel is important to define. There is little agreement among researchers about the ideal size of the panel. Different authors consider various sizes from at least four (Mullen, 2003) to up to twelve (Cavalli-Sforza & Ortolano, 1984), to ten to fifty (Turoff, 1970) experts to be the most appropriate panel size. Due to limiting factors, such as time and geographic distance, the researchers focus on the lower end, thus aiming for five to seven experts to participate in the research. Many of the critiques of small panels tend to confuse Delphis with traditional quantitative surveys (Mullen, 2003). A small panel of trained experts in a well-defined area of knowledge can indeed develop effective and reliable criteria that inform judgment and enable effective decision making (Akins et al., 2005). Besides, the qualities, expertise, and relevance of the panelists are considered more important than the actual number (Powell, 2003).

Given the high response rate of 83% in round two, the authors concluded that theoretical saturation had been attained. Theoretical saturation is a concept in Grounded Theory and describes the point at which categories and the connections between them have been cultivated with sufficient information and no novel insights are disclosed by collecting additional data (Strauss & Corbin, 1998). In this study, the authors determine theoretical saturation to be reached when they feel confident that enough information could be derived from the participants' answers in the first round to categories it in meaningful drivers that can then be discussed and verified in the second round.

An extensive list of potential participants was researched with the help of the search engine Google and contacted via LinkedIn or, if applicable, via email through the organization's website. The final expert panel, with six experts agreeing to participate and successfully completing both rounds, looks the following:

Table 4: Expert Panel

Expert No	Organizational Type	Occupation	Location
1	University	Research fellow	Nigeria
1	University	Professor	Nigeria
3	University	PhD, Assistant Lecturer	Nigeria
4	Microfinance Bank	Head of Business Development	Nigeria
5	Regulator	Deputy Head	Nigeria
6	Strategy Consultancy	Partner	Germany

In order to respect the experts' anonymity, the authors refer to the experts with their assigned number in the data analysis.

4.6.2 Company Case Interview

As mentioned before, the company case interview serves as a tool to verify the practicability of future scenarios constructed based on the Delphi technique in a real-life setting. Therefore, the authors contacted the most prominent fintechs in the Nigerian MM market and conducted a semi-structured interview with representatives of two of them – Paga and OPay. An overview for better understanding of the case interviews' positioning within the overall thesis process will be shown below in Chapter 4.8.

Selection of interviewee

While searching for a suitable interview partner, the authors determined specific selection criteria which need to be fulfilled by a potential candidate (Charmaz, 2006). For the identification of suitable interviewees, the professional social network LinkedIn is used as search engine. It allows the filtering of profiles according to chosen criteria. Here, the authors are looking for professionals that work in one of the eligible Nigerian MM fintechs (for instance OPay, Paga, Carbon, Paystack) and are positioned in a strategy or business development related department. The interview partners are supposed to be representatives of the MM fintech industry to introduce an additional viewpoint to the external experts' in the Delphi panel. Potential fintechs are selected based on a thorough internet research of those with the highest market share in Nigerian MM industry. Alternatively, promising fintechs that for instant recently received a great amount of funding have been considered.

Several qualified profiles were scanned, before a first contact was established via LinkedIn with the most suitable candidates. With the condition of a positive response, which the authors received twice from the fintech Paga and OPay, the interview partners are supplied with more detailed information about the purpose, content and structure of the interview. This approach helps the interviewee to have a clearer understanding of the researchers' expectations and ensures an appropriate preparation for the interview (Saunders et al., 2016).

Conduction and Design

As the case company interview follows an evaluative purpose, a semi-structured interview is conducted (Saunders et al., 2016). It is supposed to support the understanding and evaluation of the scenario analysis from a practical perspective. A semi-structured interview allows the researchers to prepare a number of questions on themes which they would like to dive in deeper with the interviewee. However, it also permits them to change the order of the questions or add new questions depending on the course of the conversation (Saunders et al., 2016). Overall, the interview roughly follows the subsequent structure (see also Appendix 4).

First, the interviewers welcome the interviewee and summarize again the research background and the purpose of the interview. The interviewee is asked for sound recording consents and is ensured about their person and company being treated anonymously if desired. This way an open and unbiased interview setting can be established (Brosius et al., 2016). Afterwards, the interviewee is asked first icebreaking questions concerning his/her experience, the position in the

company and the company itself. This allows the interviewers to loosen any tension in the atmosphere and to create a pleasant interview environment (Brosius et al., 2016).

Once a common ground has been established, the interviewers ask the interviewee in their perception of the biggest threats and challenges that their company is facing. This is done before the presentation of the deducted scenarios to ensure that the response is unbiased from the authors findings. Then, the interviewers start to present the future scenarios developed in the scenario analysis. For each scenario, the questions relate to two areas: first, the interviewee's opinion on the reality and relevance of the scenario, and second, the degree to which the company has strategies in place to react in such a scenario. Given the semi-structured nature of the interviews, the interviewers ask additional questions for clarification or to discuss an upcoming topic in more detail, depending on the interviewee's responses.

After all scenarios have been discussed, the interviewers give the interviewee the opportunity to bring up any additional topics or concerns that were not previously discussed to guarantee that the interviewee has been given enough room to express their viewpoint including any practical points that have not been discovered by the interviewers. In addition, the authors investigate to which degree the interviewed incorporate strategic forecasting in their strategy development.

The case company's professional insights are then analyzed, evaluated, and put into context of a critical reflection on the scenario analysis.

4.7 Data Analysis

4.7.1 Delphi Technique

The data extracted through the Delphi technique will be analyzed based on elements of the Grounded Theory method. As mentioned before Grounded Theory and the Delphi method are suitable to be put into context which is why this analysis has been chosen (Päivärinta et al., 2011). In Grounded Theory, the extracted data is analyzed in an iterative two-step coding technique, an initial and focused coding part. This supports the authors in finding common themes in the participants' answers and consequently helps in developing the final scenarios in a structured, yet flexible process. The analysis is supported by memo-writing. (Charmaz, 2006; Saunders et al., 2016)

Initial coding

Both in round one and two, after the reception of a new set of answers from a participant, the authors begin an initial analysis of the content through the initial coding technique. As the Delphi technique is applied in the scanning phase of the scenario analysis with an idea-generating function, thus an explorative purpose, the questions asked to the participants are kept broad to allow broad answers (Nowak et al, 2011). The initial coding analyzes these partially broad and lengthy answers in a first step. The authors considered using the qualitative analysis software NVivo. However, upon reception of the answers, they felt more comfortable in performing the initial coding manually using MS Excel. First, the answers were ordered by question type. Then, the authors tried to detect common themes – codes – in each of the participants' answers. Where applicable, a line-by-line coding style was applied. Line-by-line coding instigates an open-minded, critical and nuanced processing of the data at hand. By summarizing each line of the received answer, the authors are able to make out details in the dataset instead of focusing on the most noticeable pieces of information, which facilitates the later construction of future scenarios. Moreover, the codes were formulated in an action-oriented manner by using gerunds. This approach ensures that the authors summarize them in a way that stays close to the perceptions of the participants. (Charmaz, 2006)

In the first round of the Delphi technique, the initial coding gives a first impression of the potential future trends recognized by the participants, which were then validated in the second round of the study. The first round resulted in an extensive long list of 85 relevant codes of drivers.

During the initial coding phase, the authors already notice some categories and can therefore apply the same codes to similar sets of data. This will gain more significance in the subsequent focused coding step. (Charmaz, 2006)

Focused Coding

After the second round and after all responses have gone through initial coding, the most relevant codes start to become evident which are suitable as focused codes. This may be the case because either related codes or themes are brought up on several occasions or because some codes are seen to be of significant importance to the later scenario definition. (Charmaz, 2006)

In establishing valuable focused codes, initial codes that appear to be of similar meaning are combined to summarizing focused codes. Simultaneously, the authors exclude those codes which are only referred to once or do not seem to have any valuable input to the further analysis. This way, the

extracted data can be simplified in more narrow clusters which facilitates the concentration on the most meaningful topics. (Charmaz, 2006)

In a next step, the focused codes are combined into comprehensive categories. Here, the authors try to find relations between the created focused codes in order to further narrow down the data points in a purposeful way. As the Grounded Theory method is an iterative process, the categories are constantly refined, restructured and redefined until the authors feel that they have derived the most important future trends of the Nigerian MM market (Charmaz, 2006). The results were a short list of the top five drivers per category, based on the number of references and importance participants placed on each driver, as they were asked to rank the described drivers according to their relevance. These final categories are the input for the second Delphi round in which the experts were asked to critically assess, validate and comment on the presented short lists. See Appendix 5 for an exemplary result of initial and focused coding.

Memo writing

The writing of memos is used as a supportive tool in organizing the authors ideas in the construction of meaningful categories. It provides "a space to become actively engaged in [the] materials, to develop […] ideas and to fine-tune […] subsequent data-gathering." (Charmaz, 2006, p.72) As more and more data are coded and the number of codes increases, memo writing is used to take down ideas, questions, connections and everything else that comes to the authors' mind while coding and analyzing the data. As a result, spontaneous thoughts can be retained for later usage. Additionally, it serves as a tool that encourages to keep the overall picture in mind and to not get lost in an accumulating data set. Therefore, memo writing is not only implemented in the coding phases, but also throughout the course of the thesis to support the authors in the navigation of their reflections and ideas (Charmaz, 2006; Saunders et al., 2016).

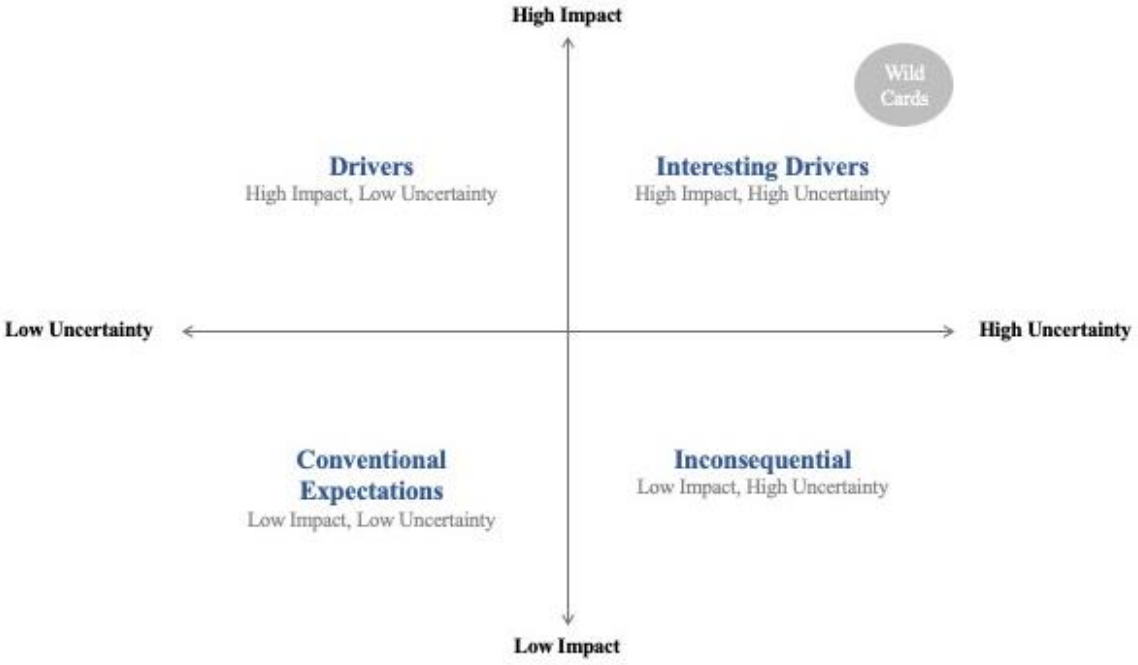
4.7.2 Scenario Development

Considering the steps of the scenario planning process, now, the forecasting phase has been reached. Here, the key drivers are derived, and the scenarios are formulated.

After the coding of the participants' answers has been completed, the authors have obtained a short list of 45 future drivers of the Nigerian MM market. These drivers relate to the markets political, economic, socio-cultural, technological, environmental and legal environment as well as

meso factors such as opportunities, threats and customer preferences. These findings are enriched through the authors subsequent own research of the literature. After having defined a final list of drivers, these drivers are plotted in an uncertainty analysis mix picturing the degree of uncertainty and impact on each axis (see Figure 13). The degree of uncertainty and impact for each driver are determined based on the previous analysis of the primary and secondary data. The insights from the Delphi study were essential for determining the impact of the drivers. As the experts were asked to rank the drivers according to their relevance for the industry, it served as a meaningful proxy. Intensive literature research and thus secondary data were primarily used to determine the uncertainty.

Figure 13: Uncertainty Analysis Mix



Source: own illustration, adapted from van Heijden (1996)

Drivers that are highly influential but less uncertain will be important to the future development of the market, but because of their certainty they will not be the cause for a variety of different outcomes. Conventional expectations define the drivers with low impact and low uncertainty and inconsequential drivers those with low impact but high uncertainty. Both groups of drivers are less important for the future of the Nigerian MM market due to their small influence on future outcomes. The most interesting drivers for further analysis are the ones that fall under the category of having a

high impact and being of high uncertainty. The two drivers with the highest uncertainty and impact will mainly determine the four different scenarios.

Once the two main driving forces have been defined, they are laid out on the previously presented two-by-two matrix which creates the basis for four distinct scenarios (see Figure 2, Chapter 2.2.2). In a next step, the scenarios are presented in a storyline format. This storyline is developed by examining how the different drivers are going to influence the story of each scenario in line with the key drivers. In computing the scenarios' storylines, the authors focus on answering the following questions (van Heijden, 1996):

- How do the drivers evolve in each scenario?
- Based on the evolution of the driving forces, which are probable consequences for the industry?
- Are they any "wildcards" (very high impact and uncertainty events) to be considered? If yes, what is their influence on the storyline?
- How do the determined driving forces influence each other (cause-and-effect linkages)?

4.7.3 Case Company Interview

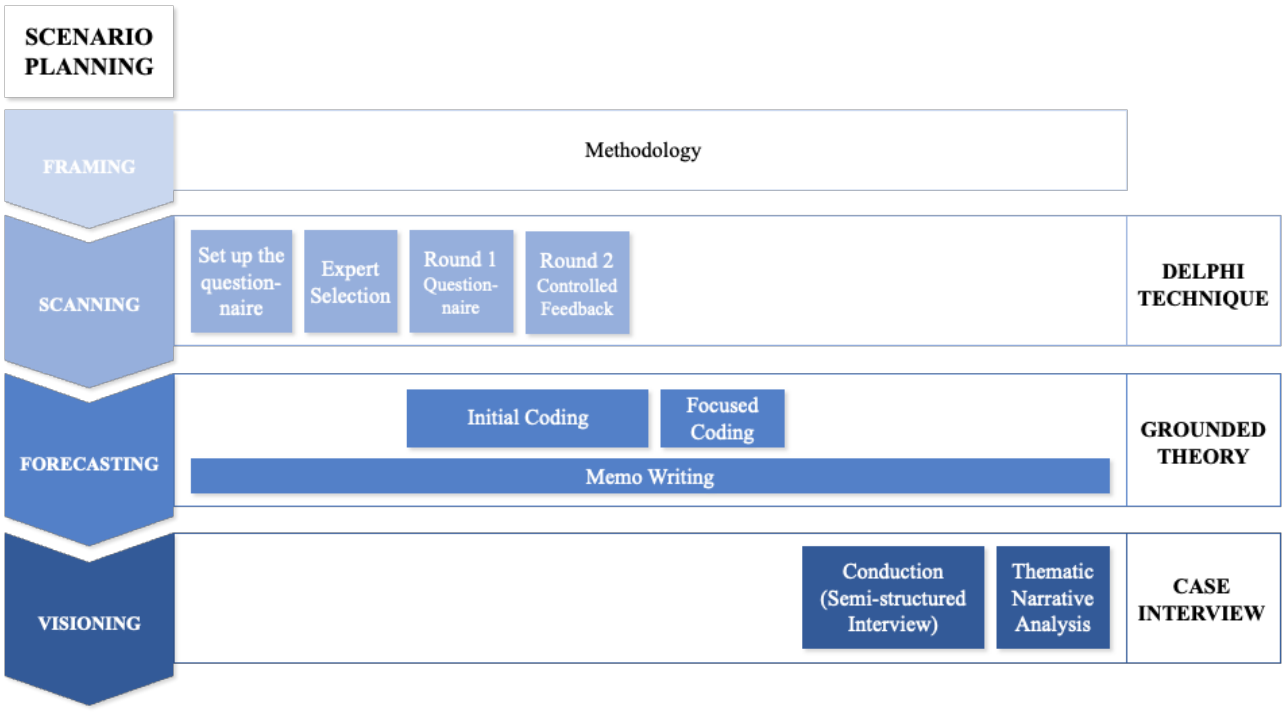
The case company interview becomes relevant in the visioning phase of the scenario analysis. (Nowack et al, 2011). Here, the scenarios are discussed in a real-life setting with a company that will have to potentially face the derived scenarios. This approach gives the authors an additional viewpoint on the validity of the created scenario stories and input on how businesses in the Nigerian MM market are forming and should form their strategic orientation to prepare for the future.

The focus in the analysis of the case company interview relies on its content by using a Thematic Narrative Analysis approach. This is not a specific technique belonging to a distinct methodological approach, but rather a "collection of analytical approaches to analyze different aspects of narrative" (Saunders et al., 2016, p.600). It becomes especially relevant in the analysis of case studies with the purpose of capturing the participants perception in the best way possible. Instead of fragmenting the dataset into codes and categories, interview sequences are analyzed as a whole. (Saunders et al., 2016) The authors feel that in this study it is important to sustain the context of the data in order to connect the insights of the case company interviews to the previous scenario analysis.

4.8 Thesis Process Overview

Figure 14 displays a final overview of the overall process that the authors follow throughout the thesis. It illustrates the different components' position within the thesis and their relations.

Figure 14: Thesis Process Overview



Source: Own illustration

The phases implementation and controlling of specific strategies of the scenario analysis (see Figure 4, Chapter 2.4) is out of scope for this project and will have to be completed by the businesses operating in the Nigerian MM market, as they are dependent on each company's individual capabilities and challenges. This thesis however serves as a valuable basis for the development of such strategies.

4.9 Research Quality Criteria

Due to the magnitude of methods that exist in the compilation and analysis of qualitative data, there is no holistic approach to evaluation of certain quality criteria. Instead, quality criteria have been established contingent upon the methodology and epistemology used. (Dixon-Woods et al., 2004)

Even though this thesis applied a multi-method approach, the overreaching framework of Delphi-based scenarios has been determined. The quality criteria for this framework are objectivity, transferability, credibility, creativity, and legitimacy (Nowack et al, 2011) which have been briefly outlined before, but are examined in more detail in the following.

4.9.1 Objectivity

Objectivity refers to the degree to which the research project is exposed to the researchers' biases. An objective research approach is especially relevant in the quantitative analysis. Yet, in qualitative analysis the concept of objectivity is interpretated much more loosely. This is because, in qualitative analysis the researchers' perspectives are welcomed and seen as enrichment. (Miller, 2012a) Still, a valuable qualitative research project should have a certain degree of objectivity and should not solely contain the researchers' selective position. (Saunders et al., 2016)

In this study, external perspectives have been incorporated in the development of future scenarios of the Nigerian MM market to enhance the scenario's objectivity. The authors rely on the insights of externals specifically in the scanning and visioning phase of the scenario planning due to its positive effects on the objectivity of the overall study (Nowack et al., 2011). This way, even if the authors perceptions are integrated in the interpretation of the obtained data and in the scenario development, it displays a dynamic context accounting for outsider's viewpoints (Miller, 2012a).

4.9.2 Transferability

Transferability describes the pertinence of the findings of a research project in alternative contexts. It is often also referred to the terms of generalizability and external validity. While generalizability is a prerequisite in quantitative studies achieved through the obtainment of a comprehensive dataset, it follows a different definition in qualitative studies. (Dick, 2014; Jensen, 2008) Similar to this study, qualitative studies consist of a case study and small sets of data, at least compared to quantitative studies. Therefore, transferability is achieved by providing a detailed and systematic presentation of the research project's context, participants and design. This way, readers are able to make their own assumption about the study's transferability. (Jensen, 2008)

This thesis clearly outlines the context of the research including its industry focus and its delimitations. In addition, a detailed description of the research design and how and why participants of the study are included in the data gathering and analysis is delineated. Hence, the authors consider

the quality criteria of transferability to be fulfilled, since based on this abundant supply of structural information, readers are capable of drawing their own conclusions on the transferability of this research's finding to an alternative setting.

4.9.3 Credibility

A research project is credible when it is considered to be believable and trustworthy. Credibility specifically relates to the researchers handling of the participants and covers the concepts of internal validity, external validity (transferability), reliability and objectivity. (McGinn, 2012) As the study's level objectivity and transferability are discussed in sections 3.8.1 and 3.8.3, this section will focus on the examination of internal validity and reliability.

Internal validity describes the authors capability of establishing central and meaningful concepts and relationship between them that are not only true to participants but also to the context of the study (McGinn, 2012). This thesis is able to demonstrate internal validity by applying an iterative process in the data collection and analysis. Obtained data is constantly evaluated through the coding approach and compared to already existing data to uncover new ideas and constructs (McGinn, 2012). The methodology discusses this process in detail for readers to retrace the author's intentions.

Reliability concerns the "dependability, consistency and/or repeatability of a project's data collection, interpretation and/or analysis" (Miller, 2012b, p.754). While the achievement of reliability is vital in quantitative research, qualitative researchers are less rigid when it comes to this quality criteria. In qualitative research, as the existence of multiple realities is recognized, the insights of the authors are welcomed and considered as a valuable input to the interpretation of the extracted data. However, this stance makes it difficult to achieve complete reliability. (McGinn, 2012; Miller, 2012b) This research study attempts to fulfil the criteria of reliability by systematically showing methodological consistency and a transparent narration of the approaches used.

4.9.4 Creativity

Besides, the future scenarios need to be innovative and original for the quality criteria of creativity to be fulfilled (Novack et al, Charmaz, 2006). In this thesis, the authors are able to collect exclusive insights from different viewpoints through the implementation of the Delphi technique and a case company interview. By applying an in-depth analysis of the gathered data instead of simply documenting them, novel insights could be extracted. In addition, the chosen topic did not offer a

considerable research in advance, which is why the authors felt the need to close this gap by applying a detailed analysis through the implementation of multiple methods.

4.9.5 Legitimacy

Legitimacy can be evaluated in how useful the designed future scenarios can be for the final users such as decision makers in businesses (Nowack et al., 2011). Usefulness can be substantiated through five criteria: descriptive relevance, non-obviousness, goal relevance, operational validity and timeliness (Thomas & Tymon, 1982). The former two criteria have already been addressed in the quality criteria transferability, credibility and creativity. Therefore, only the latter three criteria will be discussed in the following.

Goal relevance describes the correlation of the study's findings to the goals and objectives of fintechs in the Nigerian MM market (Thomas & Tymon, 1982). Most fintechs in the industry are quite young and their objective is to increase their standing in the market. The future scenarios have been developed as a valuable input for the development of a sustainable and long-term strategy in a volatile market. To make full use of the study's insights, firms will have to individually assess their strengths and weaknesses in order to identify their level of preparedness for the future development of the market and to strategically position their business accordingly.

Operational validity refers to practicability of the derived scenarios, meaning to which degree they can be transformed into actions (Thomas and Tymon, 1982). This criterion is regarded as fulfilled considering that in the visioning phase of the scenario analysis, the study verifies the practicability of the determined scenarios by discussing them with a case company. By following this approach, the authors confirm the scenarios to be realistic from an industry participant point of view and, thus, that they are translatable into actions and are a meaningful contribution to a company's strategic orientation.

Lastly, timeliness calls for findings to be accessible in a timely manner that makes it possible for businesses to put them into use (Thomas and Tymon, 1982). As this study deals with the future of the Nigerian MM market and a time horizon of 15 years has been picked, businesses are expected to have enough time to benefits from this study's results.

Seeing that all criteria are met, the findings of this thesis are indeed legitimate and useful to fintechs in the Nigerian MM market.

Chapter 5: Data Analysis

The analysis consists of two main sections: The Delphi-based scenario analysis and the case company interviews. Before entering the actual studies, first the Nigerian context, i.e., the evolution of MM and the current level of FI, is examined in more detail. Subsequently, based on expert opinion and desktop research, the scenario analysis develops four future scenarios of the Nigerian MM industry in 10-15 years with particular focus on the role of fintechs. Thereafter, the case studies involving insights from employees of two of the most promising MM fintechs in Nigeria, Paga and OPay, serve to evaluate these scenarios and at the same time to assess their positioning in view of the developed future states.

5.1 Nigerian Context

Nigeria, Africa's most populous country with nearly 206 m inhabitants (World Bank, 2021b), is considered one of the fintech pioneers in Africa and is home to over 200 standalone fintech companies (Kola-Oyeneyin et al., 2020; The Economist, 2020). Despite being one of the more mature fintech markets on the continent, the sector still shows incredible growth projections: after $153 m in 2017, Nigeria's fintech revenues are expected to reach $543 m by 2022 (Frost & Sullivan, 2018). Fintech is arguably the most promising digital sector in the country (Kene-Okafor, 2021), with digital payments companies representing the bulk of the industry (EY, 2020). Some of the most successful fintechs in Nigeria, such as unicorns Interswitch and Flutterwave, are focusing their efforts on the digital payments space. Within this subsector, the MM market in Nigeria in particular is set to experience strong growth and will become increasingly relevant for fintechs due to a multitude of enabling growth drivers.

5.1.1 The Evolution of MM in Nigeria

The enabling environment for a rapid rise of MM has not always been present in Nigeria, rather the opposite. In fact, MM in Nigeria saw the lowest penetration among all African countries and was long considered a failure (David-West et al., 2020).

In an empirical study by Evans and Pirchio (2015) on why MM systems ignite in some developing countries but flounder in most, the researchers found that the most central reason is an unfavorable regulatory framework. One with heavy regulation, high focus on banks, and burdensome KYC conditions - mirroring the Nigerian context at the time. In 2015, the CBN, responsible for

overseeing the domestic banking system, issued the "Regulatory Framework for Mobile Payments in Nigeria" with the aim of creating an "enabling environment for the adoption of mobile payment services" (CBN, 2015, p. 4). The framework stipulated two operating models: (i) a bank-led model and (ii) a non-bank-led model, excluding MNOs in the operation of MM services. Banks were to play a central role in Nigerian MM, as only those and licensed financial institutions were allowed to offer MM services.

However, as discussed in Chapter 3.3.4, the bank-led model is not effective in reaching rural communities in developing countries due to the existing barriers that financial institutions face there, such as an inadequate banking infrastructure. In addition, Nigeria had a specific three-tier KYC with different requirements depending on the account value. According to Evans and Pirchio (2015), these factors along with severe agent restrictions made MM success almost impossible. In fact, with few exceptions, all countries in SSA where MM was a success showed high MNO involvement and relatively light regulation, KYC requirements, and agent restrictions. The most prominent success story that emerged in precisely such a context is that of M-Pesa in Kenya, referred to earlier. Over an extended period of time, the CBN has thus erected regulatory barriers that have contributed to Nigeria's status as a "sleeping giant" in MM, indicating its great potential (Chironga et al., 2017).

Recently, however, the attractiveness of the MM market in Nigeria has increased significantly. As mentioned at the outset, a variety of factors contribute to this trend. In October 2018, the CBN published the "Guidelines for the Licensing and Regulation of Payment Service Banks in Nigeria," a key driver behind the dynamics of the Nigerian MM industry. Licensing and operation of a PSB allow non-financial institutions to conduct most banking activities except lending and taking foreign currency deposits, and thus also to offer MM services (CBN, 2020). The objective of the CBN is "to enhance FI by increasing access to deposit products and payment/remittance services to small businesses, low-income households and other financially excluded entities through high-volume low-value transactions in a secured technology-driven environment." (CBN, 2020, p. 6) Accordingly, PSBs would have no physical branches and would not take deposits but would provide payment services through digital means and offer predominantly digital and mobile-based services (CBN, 2020). The guidelines require MM services to operate independently and primarily in rural areas and have at least 25% physical access points in these parts of the country. This is to focus on the unbanked population. In addition, there have been favorable regulatory policies in recent years, including revised KYC requirements for lower-tier accounts and incentives to spur the development of agent networks across Nigeria (Kola-Oyeneyin et al., 2020)

Contrary to expectations, however, the effect has been modest to date (David-West et al., 2020). Motivated by replicating the successes in countries such as Kenya and India, it was expected that this regulatory progress would promote both MM and FI. While there were improvements, the expected increase in FI was not reflected in the numbers. Nigeria did not meet any of the FI targets agreed for 2020 and included in the Central Bank's "National Financial Inclusion Strategy" (2012) (EFInA, 2021). Besides the ineffectiveness of banks, the most commonly cited reasons are the lack of sustainable business models for creating MM services, lack of awareness of MM, or the use of other informal channels (David-West et al., 2020; EFInA, 2021). Moreover, the hesitant approval of the largest MNOs may also weigh in.

Nonetheless, this regulation represents a paradigm shift in the MM industry in Nigeria, as it allows MNO and fintech-led MM models to become more prevalent. Especially in light of the success factors of other nations in SSA, these developments are promising. This trend, along with various other drivers, has significant potential to boost MM in Nigeria, with fintechs potentially playing a prominent role. These drivers include the large unbanked population, increasing cell phone penetration, and regulatory push to harness these trends and increase FI and cashless payments (Kola-Oyeneyin et al., 2020). Those and a broad spectrum of other relevant driving forces will be explored in more detail at a later point of this analysis.

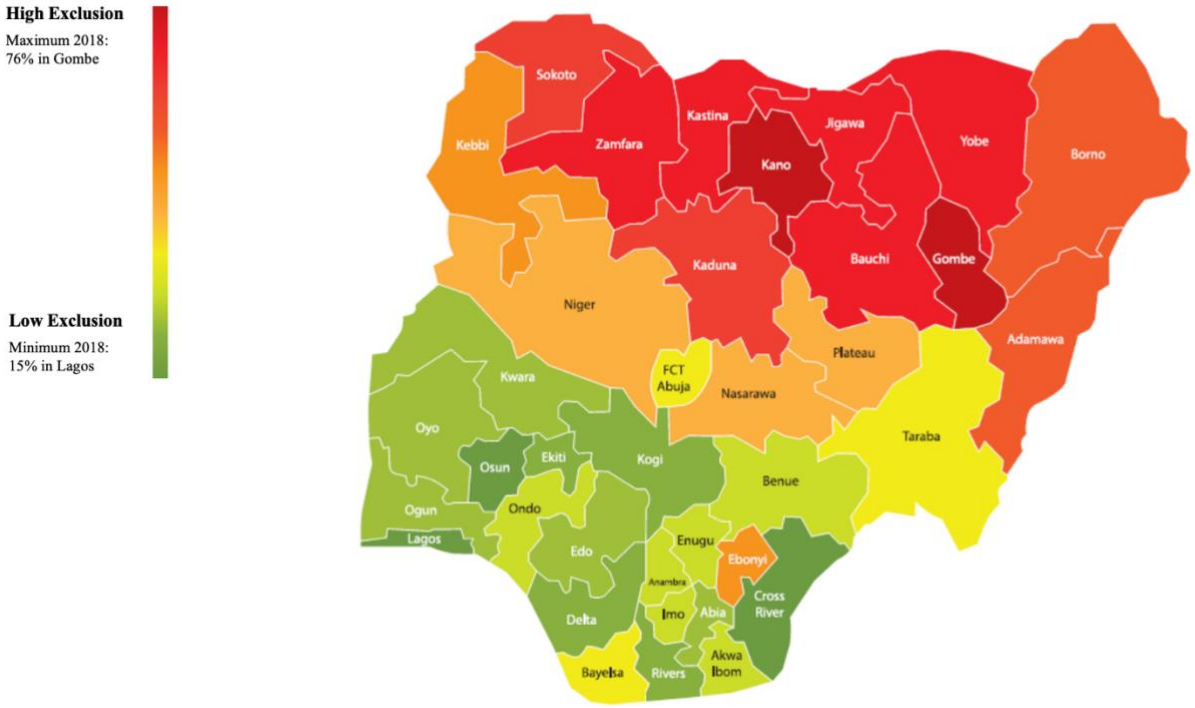
5.1.2 Financial Inclusion in Nigeria

Discussions about fintechs in Nigeria frequently touch upon their potential to drive FI (The Economist, 2020). Surprisingly, despite Nigeria having a higher share of banked adults compared to many other countries in SSA, we also see a higher rate of financially excluded people (EFInA, 2021).

According to EFInA, in 2020, 38.1 m Nigerian adults, representing 36% of Nigeria's adult population, are financially excluded (EFInA, 2021). Within the country, the excluded are far from evenly distributed. The EFInA surveys revealed that the excluded are mainly young, female, uneducated, and rural groups of Nigerian society.

In addition, there is a geographic disparity (see Figure 15). Northern Nigeria is significantly more affected by financial exclusion than the south, particularly the Lagos region.

Figure 15: Financially excluded adults per state in Nigeria



Source: Own illustration, adapted from EFInA (2018, p. 9)

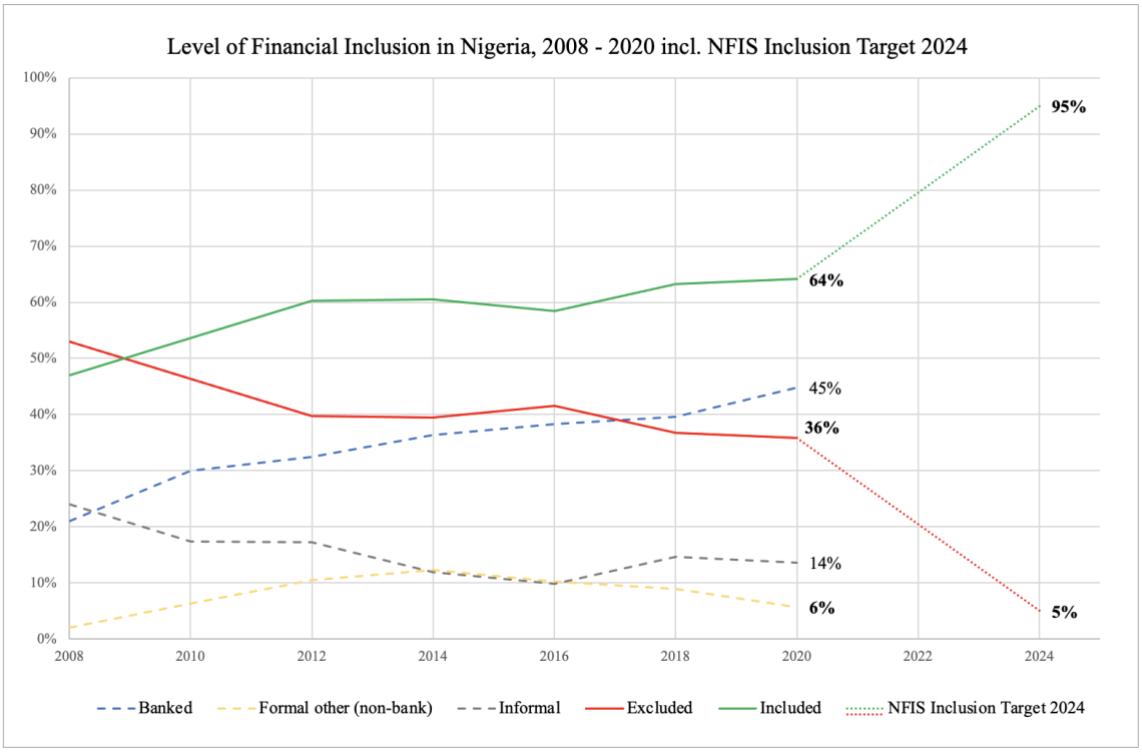
Since 2008, the number of excluded people has been decreasing only incrementally, also showing the modest impact of the PSB licenses introduction in 2018 (see Figure 16). A key factor is that Nigeria experiences precisely the challenges faced by people in rural areas of developing countries outlined earlier: Inadequate banking infrastructure, high cost of services, identity verification problems, and financial illiteracy. Especially the former factors make traditional banking almost impossible in rural areas.

At the current rate of progress, the NFIS target of 20% financial exclusion for 2020 will not be reached until around 2030 (EFInA, 2021). Since this target was tightened in 2019 to 5% by 2024, this date is likely to be pushed back even further. From a graphical standpoint, the trend shows that without a change such an ambitious goal cannot be achieved by 2024.

However, according to WorldData Lab, the target could be reached much faster if Nigeria experiences rapid adoption of MM, as seen in some neighboring countries (EFInA, 2021). Several other countries such as Rwanda, Kenya or Tanzania have expanded FI over the years via non-bank

formal financial services[3] such as MM (EFInA, 2021). In Kenya, the numbers show that MM has long played an important role in FI (see Appendix 7, Nigeria & Kenya FI). Especially after the introduction of M-Pesa in 2007, the share of non-bank financial services has spiked to 39% in 2019, accounting for almost half of the FI success of 89% in 2019. Comparing this to Nigeria, it becomes apparent that non-bank financial services have played and still play only a minor role (see Figure 16). With a peak in 2014 of 12%, the share has dropped to just 6% by 2020, still leaving the majority of FI "achievements" to banks.

Figure 16: Level of FI in Nigeria, 2008 – 2020 incl. NFIS 2024 target



Sources: Data from CBN, 2019; EFInA, 2008, 2010, 2012, 2014, 2016, 2018b, 2021

With just under 50% of adults not using any formal form of financial services, this makes Nigeria an attractive market for companies able to effectively reach them, especially via MM. The survey further states a large increase in mobile phone ownership in 2020. In Nigeria, 61% of the financially excluded own a mobile phone, 81% relative to the total population. (EFInA, 2021) Furthermore, nearly 95%

[3] See Appendix 6 for FI definitions according to EFInA (2021) terminology

of transactions in Nigeria are still cash-based (Dunkel et al., 2020; Munshi, 2020). These developments highlight the potential of both fintechs and telecommunication companies in Nigerian MM.

However, there are some critical voices that question the role of fintechs (especially app-based) in driving FI. Fintechs need to reach excluded populations. However, most fintech solutions are deployed on smartphones, which require a stable internet connection. According to the World Bank, only about 10% of unbanked Nigerians have access to both a mobile phone and some type of internet connection (Demirgüç-Kunt et al., 2018). Besides, Nigeria experiences increasing smartphone penetration, however, primarily in urban areas. As a result, many fintech services are largely inaccessible for rural communities. This creates a tendency for fintechs to deepen engagement among those who already have an existing banking relationship. (The Economist, 2020)

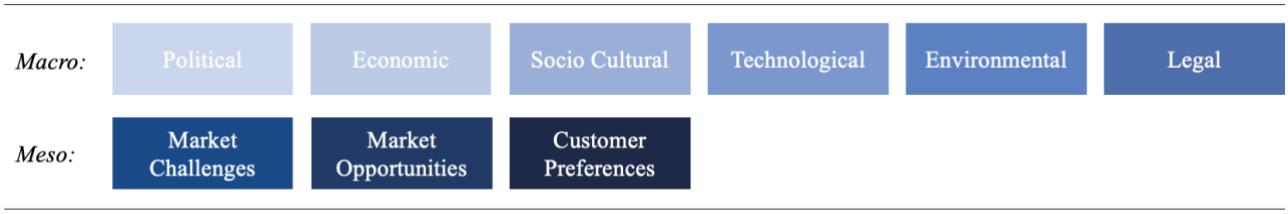
All in all, the data shows that FI goals in Nigeria can only be achieved with a significant increase in formal non-bank financial services, of which MM is the most important means. Particularly, there is a need for accessible digital MM solutions for the rural population in Nigeria.

5.2 Scenario Analysis

5.2.1 External environment

The following section outlines 45 driving forces, divided into nine macro and meso categories, which form the external environment and thus provide the basis for scenario development (see Figure 17). After the experts shared their insights on relevant drivers for the macro-environment, they were asked to elaborate how these drivers influence the meso – industry – environment in form of challenges, opportunities, and customer preferences.

Figure 17: External environment categories



Source: Own illustration

Macro environment – Nigeria

a) Political

So far, FI has mainly been a prime objective of the CBN but has not become a clear priority on a federal level, yet (Expert 2). If FI, specifically the distribution of MM, becomes a political imperative, the Nigerian government can support the creation of synergies between stakeholders, including banks, MNOs, fintechs and of course customers (Expert 2, 4). Most experts agreed that the **political will** in supporting the promotion of FI, by introducing corresponding policies, has a tremendous influence on the evolution of the MM industry. Another important driver that has been mentioned is the **development of institutions** and the overcoming of institutional voids. Many institutions concern themselves with facilitating the empowerment of vulnerable population groups such as women and young people. As this typically involves FI as a key driver, MM providers and institutions should collaborate in assessing how MM solutions can help bridge occurring institutional voids by designing products and services guided by the needs of these vulnerable segments. (Expert 2,3) Looking at the financial service and telecommunication industry, regulators responsible for these segments have been very active in introducing new **regulations and policies** with the goal of "expanding the MM

market and anticipating attendant risks" (Expert 4). Examples are the previous mentioned licensing of PSBs through the CBN and the introduction of price ceilings to restrict the payment transaction or money transfer cost burden on customers (Expert 5). Another vital initiative that has been moving forward is the expansion of an internet and mobile connectivity **infrastructure**. For instance, in Ogun state, according to Expert 5, a state-of-the-art fiber-optic infrastructure[4] has been implemented across the state which is expected to be replicated by other states. If a widespread deployment of such a progressive network is indeed successful in also reaching more isolated areas, this development will provide new opportunities for MM providers and customers. One of the reasons, why FI and the dissemination of MM services has not been on the top of Nigeria's political agenda can be attributed to the predominant **instability** that needs to be managed by government officials (Expert 3,6). Some of the most pressing challenges are for instance the, often violent, unrest in several parts of the country endangering the population caused by the Islamist group Boko Haram, piracy along the coast and other organized crime groups. Other challenges are the issue of corruption and white-collar crime weakening the legitimacy of the ruling government, underfunded local governmental institutions and tensions between Christian and Islamic religious groups. (Bertelsmann Stiftung, 2020) On a political stability index where -2.5 refers to low and 2.5 to high stability, Nigeria only scored an average of -1.93 in 2019. Compared to that, the world average lies at -0.06 points (The Global Economy, 2020).

Table 5: Political drivers

Top 5 Driving Forces - Political
1. Political will in promoting financial inclusion policies
2. Institutional development
3. Regulations and policies
4. Infrastructure for mobile telephony
5. Political instability

Source: Delphi expert panel

[4] A fiber optic network is a glass or network that transfers communicated information faster and more reliably than traditional copper cable communication networks (Enelx, 2021)

a) Economic

Even though Nigeria is one of the most prosperous economies in Africa, 40% of the population are classified as poor. This is especially the case in rural areas where over 50% live in utmost poverty (NBS, 2020). Nigeria does not suffer from a lack of resources though, but rather from a misallocation that enriches the already rich and does not reach lower income groups (Odo, 2017; Oxfam, 2021). In some parts of the country that are dominated by Boko Haram, **poverty and inequalities** are further reinforced due to the conflict's impact on the mobile and financial services infrastructure (Expert 5, 6, 4, 2). Having one of the world's highest **unemployment** rates (33.3%) (Olurounbi, 2021), economic inclusion is essential in increasing the demand for MM services and advancing FI (Expert 1, 2). As discussed in Chapter 3.1.2, the main reason for unbanked individuals to not have an account is a lack of resources (Demirgüç-Kunt et al., 2018). Initiatives that ameliorate the financial empowerment of low-income segments will simultaneously stimulate **FI**. So far, their success rate has been moderate considering the country had fallen short on its goal to financially include 80% of the population by 2020 (Chapter 5.1.2; Expert 5). However, some promising developments can be identified. First, the Nigerian **fintech industry** has been experiencing exponential growth (Expert 1). In 2020, funds raised by Nigerian fintechs made up 20% of all funding going to African tech startups – a total of $ 439 m (EY, 2020). Second, Nigeria's **middle class** is growing and now accounts for about 23% of the population, indicating that the inequality gap is slowly closing (Persianas, 2021; Expert 3). Nonetheless, Nigeria needs to find ways to provide attractive education and labor opportunities for qualified middle-class members as they tend to leave the country for better opportunities e.g., in the US, Australia or Europe (Campbell, 2019).

Table 6: Economic drivers

Top 5 Driving Forces - Economics
1. Poverty and income inequality
2. Employment level
3. Level of financial inclusion
4. Fintech investments
5. Middle class growth

Source: Delphi expert panel

b) Socio-cultural

The most significant trends according to the expert panel from a socio-cultural perspective are the **growing younger population** and the **increase in digital literacy.** In 2020, 43.5% of the Nigerian population were under the age of 15 (The World Bank, 2020b). This growing youth population is highly tech savvy and has a high adoption rate for digital products. As future customers, they will be looking for convenient and mobile financial services particularly as the currently fairly low smartphone adoption rate is expected to escalate in the future (The Guardian, 2021). Other social concerns relevant for the development of MM services is **gender inclusion** and financial literacy. Closing the gender gap in financial exclusion has been one of the major concerns addressed by the CBN and EFInA as it continues to augment in contrast to other African countries such as Kenya and South Africa. Therefore, the development of adequate programs has been directed towards the underlying issues contributing to female financial exclusion such as lower income level, lower education standards and lower trust in DFSs. (CBN et al., 2019; Expert 1) Regarding **financial literacy**, institutions such as CBN, EFInA and the Nigerian Deposit Insurance Corporation (NDIC) have launched a variety of projects intended to train numeric skills and a basic understanding of financial management in local communities (Osibogun, 2020; Expert 3, 4). Moreover, the expert panel brought up that MM services have been instrumental in securing the disbursement of **governmental investment programs** such as the Government empowerment program (GEEP) and the social safety net program. The growing mobile phone adoption allows the government to ensure that G2P payments reach the rightful recipient as SIM cards are generally validated through a National Identity Number (NIN). (Expert 1, 4)

Table 7: Socio-cultural drivers

Top 5 Driving Forces - Socio-Cultural
1. Growth of younger population
2. Financial literacy
3. Gender inclusion
4. Growth of more digital savvy population
5. Robustness of governmental social investment programmes

Source: Delphi expert panel

c) Technological

The level of **digital awareness in society** is the most important technological factor according to the panel and a main obstacle to the use of MM (EFInA, 2021). The degree to which digital identity is embedded in culture will determine the demand-side push of DFS (Experts 4&6). Second, general **technological progress** will play a major role. AI enables voice, facial, and text recognition to be used for transactions, to for instance overcome language barriers and digitally drive economic growth (Expert 1). In Nigeria, with over 500 spoken languages (Blench, 2020), this innovation is promising. Third, the **penetration of smart and feature phones** will continue to be essential. Decreasing costs and thus growing accessibility of smartphones will lower barriers (stable 3G internet access or phone camera) to new MM offerings (app based, QR) beyond urban areas (GSMA, 2021b). As a "mobile-first market" (Expert 2), this has implications for agent-based transactions, rendering physical locations obsolete. However, the value of increased feature phone penetration for USSD-based MM should not be underestimated (Expert 1). Fourth, **infrastructural developments** were highlighted, focusing on 5G and broadband penetration. The latter is a key barrier to the DFS ecosystem (e.g., network disruptions) so ongoing build out will have a great impact, especially in the Nigerian hinterland (Expert 1). **Fintech expansion** emerged as the fifth factor. The panel uniformly argued that the expansion of fintech products, services, and platforms would promise positive outcomes for MM - confirmed by desktop research. Innovative solutions built for young digitally savvy consumer, delivered via mobile, apps, or platforms would enjoy high adoption (Expert 5).

Table 8: Technological drivers

Top 5 Driving Forces - Technological
1. Level of digital awareness in society
2. Technological advancement
3. Mobile penetration (smartphone, USSD, etc.)
4. Infrastructural development
5. Fintech expansion

Source: Delphi expert panel

d) Environmental

The panel sees a focus on green finance and payment to be the most relevant ecological driver. **Green finance** is understood as "financing of investments that provide environmental benefits" (IFC, 2017). Nigeria will see increased investments in this area promoting both sustainability and FI (Expert 4). Second, climate change related **natural disasters** are becoming more serious. One effect is flooding, which annually puts smallholder farmers in "serious financial shocks" (Expert 1). In this context, the concept of Green Financial Inclusion (GFI), a field at the intersection of climate change and FI was raised (Expert 3). MM can support GFI by building resilience enabling cash transfers after disasters and providing micro-insurance to affected communities (Lopez, 2019b). Also, **diseases** are relevant. Third, the "**Nigerian Sustainable Banking Principles**" (NSBP) were raised. Adopted in 2012, the NSBP "guide the practice of banking and align it to international development priorities" (Expert 5), including ESG criteria. Besides, they promote ecologically measurable and friendly DFS over physical outlets (e.g., bank branches, agents) to reduce environmental footprint and risks, accelerating the adoption of MM in the future (Expert 5). Fourth, the Delphi revealed the importance of **renewable energy**. By providing access to clean and affordable energy, mobile can mitigate climate change (Lopez, 2019b). Business models such as the MM-pay-as-you-go (PAYG) model allow customers to pay in installments and help households to replace dirty energy sources (GSMA, 2017). In addition, renewable energies ensure a constant supply of MM in rural areas (Expert 4). Fifth, **depletion of ecological infrastructure facilities** is a final driver in the future of Nigerian MM (Expert 6).

Table 9: Environmental drivers

Top 5 Driving Forces - Environmental
1. Green financing and payment
2. Natural disasters and diseases
3. "Nigerian Sustainable Banking Principles" (NSBP)
4. Use of renewable energies
5. Depletion of environmental infrastructural facilities

Source: Delphi expert panel

e) Legal

A sound regulatory framework is essential in the growth of MM (Experts 2&4). Hence, **government policies and regulations** were named the most important factor. Recently, a new framework had been issued (CBN, 2021), but little has changed. For fintechs, an opaque regulatory environment remains a growth barrier, calling for a specific fintech law (The Economist, 2020). Second, **consumer protection laws** were listed, which Nigeria is currently good at balancing with innovation. However, continuous evolution is needed to respond to market dynamics, as e.g., fintechs remain constrained by limited access to consumer data due to a data protection law (The Economist, 2020). However, without strong consumer protection on issues such as data- and cybersecurity, any other regulatory initiative may fail (Expert 3). Third, **PSB licenses** were stressed, where the hesitant pace of licensing to date will be critical. As described earlier, the impact can be immense, even if to date the effect on FI has been modest. Fourth the presence of an improved **regulatory sandbox**, i.e., a "controlled environment where innovative companies can test their ideas under the supervision of a regulator" (EFInA, 2020). Encouraging innovation and experimentation, this allows operators to mitigate risks avoiding high compliance costs (Expert 1). As innovation precedes regulation, this could create new opportunities through proactive regulation (Agha, 2020). Fifth, approval of **MNO-led MM models** in Nigeria was listed, given the MNO-led MM successes in other SSA countries. The CBN, however, continues to ban this model. This bears immense potential for impact, but equally high uncertainty as to whether the CBN will follow this path in the future (Expert 1)

Table 10: Legal drivers

Top 5 Driving Forces - Legal
1. Government policies and regulations
2. Consumer protection laws
3. "Payment Services Bank" (PSB) guidelines
4. Presence of regulatory sandbox
5. Licensing of non-financial institutions to operate in the MM industry

Source: Delphi expert panel

Overall, this spectrum of drivers creates the macro environment in Nigeria (see Figure 18). As shown in Chapter 2.1, the macro environment of an industry significantly influences its development and thus has a major impact on strategic forecasting. Consequently, the inclusion of these drivers in scenario development is fundamental.

Figure 18: Overview of Nigerian macro environment

POLITICAL	ECONOMIC	SOCIO CULTURAL	TECHNOLOGICAL	ENVIRONMENTAL	LEGAL
Political will in promoting financial inclusion policies	Poverty and income inequality	Growth of younger population	Level of digital awareness	Green financing and payment	Government policies and regulations
Institutional development	Employment level	Financial literacy	Technological advancement	Natural disasters and diseases	Consumer protection laws
Regulations and policies	Level of financial inclusion	Gender inclusion	Mobile penetration (smartphone, USSD, etc.)	"Nigerian Sustainable Banking Principles" (NSBP)	"Payment Services Bank" (PSB) guidelines
Infrastructure for mobile telephony	Fintech investments	Growth of more digital savvy population	Instrastructural development	Use of renewable energies	Presence of regulatory sandbox
Political instability	Middle class growth	Robustness of governm. social invest. programmes	Fintech expansion	Depletion of environmental infrastr. facilities	Licensing of non-financial institutions in Nigerian MM

Source: Own illustration based on Delphi expert panel outcomes

Meso environment – Nigerian MM Industry

To understand the status quo of the Nigerian MM market, i.e., the industry or meso environment, it is useful to provide an industry overview. As of 2019, Nigeria had 15.3 m MM customers. While the percentage share of just under 8% of the total population is relatively low, it has increased sharply in recent years. Similarly, both the number of MM agents registered in Nigeria and the transaction volume surged in 2019 compared to 2018. The number of agents exploded, increasing by nearly 700% from just under 39,000 to approximately 266,000 agents (Statista, 2020). Transaction volume increased over 400% from 87.3 m to 377.3 m transactions (Nigeria Inter-Bank Settlement System PLC., 2020). However, compared to 2.26 b MM transactions in Kenya only in Q1-Q3 of 2019, this amount is still very low (Communications Authority of Kenya, 2019).

This subsection first continues with a brief overview of the market structure to create a better understanding of the Nigerian industry landscape. Subsequently, the results of the Delphi rounds on market challenges and opportunities, and customer preferences will be outlined.

Market structure:

The key market players involved in the MM value chain include MNOs, banks, and standalone mobile payment services such as fintechs.

Mobile network operators:

The dominant player in many countries are the MNOs. With virtually 99% market share, four companies dominate the telecom market in Nigeria, namely MTN (39.7%), Airtel Nigeria (26.8%), Glo Nigeria (26.7), and 9mobile (6.9%) (MarketLine, 2021b). MTN stands out with almost 40% market share and nearly 75 m customers (NCC, 2021).

Over a long period, MNO participation in Nigerian MM have been restricted. Since 2018, they are allowed to offer conventional MM services by having a PSB license. However, the PSB licenses do not completely lift the regulations on MNOs but put them on an equal footing with those of banks, presumably to prevent a quasi-monopoly of telecommunication companies as in the case of M-Pesa in Kenya.

All relevant MNOs applied for PSB licenses immediately following its publication. In late 2020, Glo (Money Master PSB) and 9mobile (9PSB) received final approval to operate their subsidiaries as PSBs (Endurance, 2020). However, the biggest players MTN and Airtel Nigeria applied in early 2019 and are still pending approval. MTN (Money) is Africa's leading MM provider

after M-Pesa (Chironga et al., 2017) giving them extensive MM experience. In Nigeria, MTN operates a MM service as a separate fintech vertical called "MoMo Pay". However, it remains without a PSB license but a so-called "super-agent" license. This allows them to offer financial services only through their own agent network instead of offering users MM services using their phones through their individual MM accounts. (MTN, 2019)

Looking beyond Nigeria to less regulated MM markets in SSA where MM is flourishing, these are dominated by MNOs. Therefore, PSB licenses are expected to significantly increase the importance of MNOs in the Nigerian MM market (GSMA, 2020).

Banks:

The second category of players are the banks. There are numerous competitors in the banking industry. While the sector is less concentrated than the telco market, there are still a few larger players (MarketLine, 2021a). Many of the largest banks have MM offerings, including Access Bank (Access Money), Zenith Bank (EaZyMoney) and GTBank (MM) (GSMA, 2021a).

Banks have long been central players in Nigerian MM, being key to the most adopted value chain model (Osafo-Kwaako et al., 2018). Brand equity, physical presence and existing customer data are advantages banks can benefit from (David-West et al., 2020).

However, especially in the wake of the PSB licences and the growing number of fintechs, banks are coming under increasing pressure and are threatened by the changing landscape. This is evident, among other things, from the fact that allegedly the delays of the PSB licenses for MTN and Airtel have in part been thwarted due to lobbying by banks concerned about losing market share to them (Munshi, 2020). Therefore, more and more banks are innovating their products or partnering with start-ups or financial SME's (The Economist, 2020).

Third-party MM service providers (fintechs):

The final category of players is the standalone or third-party mobile payment service providers, to which fintechs can be assigned. Some of the most relevant fintechs in the MM space are Paga, OPay, eTranzact and Cellulant.

According to Partech, with US$ 307 M invested in 2020 Nigeria is the number one VC funding destination among all African countries (Partech, 2020). Prior to the pandemic, multiple MM fintechs such as Paga, OPay, and Palmpay have been part of large investment rounds.

At scale, fintechs have their strengths primarily in customer acquisition and service, transaction processing, and product development and deployment. Driven by funding, they develop cutting-edge digital products and services. The biggest challenge, however, is distribution, as building agent networks represents a major cost driver. (Osafo-Kwaako et al., 2018)

Overall, the Nigerian MM market is a highly fragmented and dynamic industry, the direction of which does not seem to be fixed, especially with a view to the future. According to GSMA, there are currently 17 live deployments in Nigeria (GSMA, 2021a), with 5 bank-led and 12 non-bank led models (David-West et al., 2017). Nigeria therefore has the highest number of operators worldwide with Bangladesh being second with only 13 operators (GSMA, 2021a). Still, due to the efforts of the large MNOs to obtain PSB licenses, it can be assumed that even more players focusing on non-bank led models will arise (EFInA, 2018c). Given the fact that Nigeria has the most MMOs and simultaneously a vast amount of financially excluded people in African comparison might reveal that MMOs are concentrating in urban areas, neglecting the rural communities (Ugwuja & Dickson, 2020).

a) Market Challenges

A significantly challenging aspect accentuated by the Delphi expert panel is the high level of **financial illiteracy** especially in rural parts of the countries. Even though institutions are educating people in financial planning, MM service providers are still required to offer financial products with a low level of complexity and provide the needed instructions to ensure that customers are utilizing financial services appropriately and can take advantage of the full product offering. (Expert 4, 5) Financial illiteracy is only one of the aspects that FSPs are urged to consider in a **compelling customer value proposition** (Expert 1). If DFS want to truly set themselves apart from traditional FSPs, they should not rely on the advantages of easy access and convenience provided through digital channels. For MM services to be valuable, providers are urged to improve security risk, network reliability and product offerings that go beyond the storage of money. In this context, MM players have to compete with **new entrants** that are increasingly entering the Nigerian MM market since the CBN allowed non-banks to apply for a mobile banking license (Expert 3). FSPs face additional challenges such **political instability** in some parts of the country causing civil commotions that result in the displacement of populations. For MM service provides this complicates reaching these population groups, that are typically living in rural areas that are already hard to reach. (Expert 5, 6) Moreover, for low-income segments, financial services are often too expensive. FSPs are frequently forced to source for foreign **exchange rates** on the black market due to Nigeria's dependency on the oil price making the country's foreign exchange highly vulnerable to any changes. As a result, rising costs are passed on to the end-customer excluding poor customer segments who cannot afford the costs of financial services. (Campbell, 2020; Expert 1)

Table 11: Market Challenges

Top 5 Driving Forces - Market Challenges
1. Financial illiteracy
2. New market players
3. Lack of compelling customer value proposition
4. (Geo-)political instability
5. Exchange rate

Source: Delphi expert panel

b) Market Opportunities

The biggest opportunities for players in the MM industry are first of all the **size of the market** (Expert 2, 3, 4, 6) and the fact that it is expected to grow further (Expert 2, 3, 4, 6). The most significant trends that are fueling the **market growth** are the limited infrastructure of brick-and-mortar FSPs, growing consumer awareness and adoption of digital services and improved product offerings. (Ivo, 2021) In addition, advancements in the distribution of **National Identification Numbers** (NIN) are accelerating the market growth as citizens are required to have a NIN to register for a SIM card (Expert 1, 4.) Between October 2019 and May 2021, the government issued 17 m NINs and is forecasted to speed of the registration process after receiving additional funding from the World Bank, the "Agence Française de Développement" (AFD) and the EU. (Thales, 2021) Even though developing a compelling customer value proposition can be viewed as a challenge, focusing on **customer-centric product development** also present some opportunities (Expert 2). This way, MM providers can address specific customer needs and ensure that their products are adopted by their target groups. In fact, trends such as **cash displacement** and the growing use of contactless payments validate that the market is prone to adopt DFS (Expert 6). Besides, customer-centric MM products for the unbanked population will help to expedite the FI agenda.

Table 12: Market Opportunities

Top 5 Driving Forces - Market Opportunities
1. Market growth
2. Market size
3. National identification advancements
4. Customer-centric product development
5. Cash displacement

Source: Delphi expert panel

c) Customer Preferences:

Given the diverse Nigerian FI, distinction between the needs of distinct customer segments is crucial. Overall, **access to consumer and micro, small and medium-sized enterprises (MSME) credit**, especially digitally, is the key preference. Digital credit is MM-enabled credit allowing consumers to apply for and repay the credit via MM (Lopez, 2019a) empowering individuals to meet their financial needs, cushion shocks, and exploit business opportunities (GSMA, 2021b). MSMEs could efficiently serve BOP segments and boost DFS through for instance e-commerce (Expert 1). Second and third, customers will be demanding innovative, yet simple **digital banking and payment** solutions (Expert panel). Already today, the share of digital MM transactions increases, even before they spiked during the pandemic. Given this trend, MM-enabled merchant payments are also gaining traction. (GSMA, 2021b) Fourth, **improved financial access with lower costs** was mentioned. In the EFInA study (2021), bank accessibility and cost were among the top four barriers for consumers to having a bank account. Only 38% of adults in rural areas are close to financial access points. The number of those seeking to achieve financial access through low-cost digital channels will increase in the future (EFInA, 2021). Fifth, the panel raised **micro-credit, -insurance and -payments** as a final key need. Given the failure of traditional bank lending models and credit risk assessment criteria that exclude people below a certain income threshold, many banks are exploring the huge microcredit market. Again, the example of M-Pesa has shown that with administration and dispensation via MM, the low-end, low-volume, low-value market can be a cost-effective and thus profitable segment (Expert 5).

Table 13: Customer Preferences

Top 5 Driving Forces - Customer Preferences	
1.	Access to consumer and (M)SME credit
2.	Increased digital banking
3.	Increased digital payments
4.	Increased financial access with less cost
5.	Microcredits, micro insurance and micro payments for BOP customers

Source: Delphi expert panel

Figure 19 provides an overview of the meso environment, i.e., the factors arising from the Delphi study that will have a significant impact on the future MM industry in Nigeria.

Figure 19: Overview of Nigerian meso environment

MARKET CHALLENGES	MARKET OPPORTUNITIES	CUSTOMER PREFERENCES
Financial illiteracy	Market growth	Access to consumer and MSME credt
New market players	Market size	Increased digital banking
Lack of compelling customer value proposition	National identification advancements	Increased digital payments
(Geo-)political instability	Customer-centric product development	Increased financial access with less cost
Exchange rate	Cash displacement	Microcredits, -insur. and –payments for BOP customers

Source: Own illustration based on Delphi expert panel outcomes

5.2.2 Delimitation of key driving forces

The analysis of the MM industry and its environment reveals several important drivers for change. Following the methodology, the most interesting drivers that will mainly determine the four different scenarios are those that classify as high impact and high uncertainty. In order to identify those, the drivers were plotted in the Uncertainty Analysis Mix (see Appendix 8), based on the previous analysis of the primary and secondary data. The insights from the Delphi study were essential for determining the impact of the drivers. Over the two rounds, the experts were asked to rank the drivers according to their relevance for the industry, providing a meaningful proxy. Intensive literature research and thus secondary data were primarily used to determine the uncertainty.

It became evident that the majority of drivers have a medium to high impact on the industry but only a low to medium level of uncertainty. The five most influential and uncertain drivers according to the authors analysis were:

- Technological advancements
- Customer-centric product development
- Relevance of new market players

Technological advancements in digital and mobile financial services were not chosen as one of the key drivers, because the type of technological developments could not be specified. It could range from moderate technological updates to disruptive new technologies. However, in order to formulate the four scenarios, a certain degree of specificity is required.

Hence, the most uncertain and impactful drivers that will determine the future environment, are first, the future relevance of new market players, referring to the dominant future value chain model, and second, the degree to how successfully MM provider can transition to customer-centric product development. These will be discussed in more detail in the next sections.

Dominant MM value chain model

In the decade ahead, the competitive landscape of Nigerian MM will become increasingly tense and will most likely experience a major shift in the relevance of players. New players such as MNOs and fintechs are entering the market via PSB licenses. While this trend has been outlined in several sections above, the influence on the dominant MM value-chain model has been explored less. In contrast to the past, which was limited by regulation to two models, i.e., bank-led and non-bank led excluding MNOs, stakeholders are now provided with a level playing field. From traditional models such as the bank-led or MNO-led models to a more disruptive model, the fintech-led model, several archetypes could be dominant

Having been largely protected by regulators, the currently rather ineffective bank-led model is heavily threatened in future. While previously, banks have rolled out digital products mainly by partnering with fintechs, they now seek a separate license to have full control over the payment infrastructure (Onu, 2021; Expert 1). Hence, the MM space will witness a series of spin-offs of new fintech arms from incumbent financial services providers as separate business entities. Nigerian banks such as Guaranty Trust Bank and Access Bank are already seeking regulatory approvals for their

fintech units (Expert 1). While this could be a viable path to remain dominant in the future, the need for banks to change is urgent. If the largest MNOs get a PSB approval, they could undercut the banks.

Having opened the MM industry to MNOs, the CBN has yet to approve the PSBs to MTN and Airtel, the two largest telcos in Nigeria. When this happens, the telco-led model has huge potential to dominate, especially given successes in other SSA countries and their spectrum of advantages highlighted throughout the thesis. Nevertheless, the impact of MNOs with PSB licenses has been modest so far, so it is uncertain how strong MNOs will become. Especially in view of services that go beyond the MM wallet, MNOs have relative disadvantages to banks and fintech companies. These include adjacencies both of financial nature such as savings, lending, or insurance, and of nonfinancial nature such as ecommerce.

While the models above can be described as traditional models that have already been dominant in at least one nation in SSA, the fintech-led model represents a more disruptive one. On the one hand, this includes deeply funded fintech startups such as OPay, but also pure tech players. The latter is referring to both payment-focused providers like PayPal, but also large platforms like AliPay which can be called "TechFin" companies, i.e., technology companies with existing customer bases that offer financial services as an add on offering (EFInA, 2020). Given the stiffer competition among industry players, those with technology and financial wherewithal will be able to fend off competition (Expert 1). Since besides effective product development, fintechs in Nigeria are increasingly able to attract funding, they could be able to dominate the ever-turbulent financial services business environment in the future.

Overall, experts remain uncertain about which player will dominate the MM value chain in the long term. This leads to two distinct extremes (see Appendix 9): One the one hand, a traditional player might dominate the MM value chain in Nigeria, either a bank or one of the major MNOs. On the other hand, Internet players could dominate the MM space, which for instance experts from McKinsey predict (Osafo-Kwaako et al., 2018). Each model has its strengths and weaknesses, and new regulatory support from the CBN may also be decisive in determining the outcome. Since few players have all the capabilities to fully seize future opportunities, sensible make/buy/partner decisions will be essential (Osafo-Kwaako et al., 2018). Furthermore, which player can best exploit its relative competitive advantage to meet future market demands will be key. Any outcome will have a significant impact on market dynamics and, especially in view of the status quo, will have an immense impact on MM adoption and FI advances.

Transition to customer-centric product development

One of the biggest opportunities for MM providers, which at the same time also represents one of their biggest challenges, is to what extent they will be able to build customer-centric products and services.

In customer-centricity, companies' strategies and product development revolve around finding solutions to distinct customer requirements (Kilara & Rhyne, 2014; Soha, 2014). If Nigeria indeed wants to reach its goal of having 95% of the population financially included by 2024, a customer-centric approach is going to be key. Even though it requires extensive customer research, potentially organizational restructuring and a considerable amount of resources in the short-term, it is the most promising approach to build a long-term, valuable and trusting customer relationship especially with the unbanked population (Kilara & Rhyne, 2014; Soha, 2014). Reaching the unbanked that are, as this thesis has shown, typically vulnerable population groups that are living in rural areas, affected by turmoils, relying on low income and to a large percentage female and of an older age will require deliberate strategic planning. Albeit the country's determination in financially including the unbanked is highly encouraging, rapid FI also inherits a number of risks. When developing digital or mobile financial services it should be taken into account that for instance individuals that are female and live in rural areas are less likely to own a mobile phone or have access to the internet than their male and urban counterpart. In addition, these groups tend to be less trusting towards FSPs and have a lower level of financial literacy. Therefore, a harsh transition to MM services or DFS could result in adjustment problems and potentially exacerbate the income and gender gap. Moreover, a speedy scale up of DFS risks the proper implementation of KYC and AML compliance measures that should not be neglected. (Agur et al., 2020)

The expert panel criticized a lack of a compelling customer value proposition in MM providers' current product portfolio indicating that their strategy might not have a strong focus on customer centricity yet. The variety of variables that MM providers need to adhere to in their product development and that a successful implementation calls for the collaboration between different governmental institutions and MM players, which adds another layer of complexity, is what causes this driver's high level of uncertainty. In Nigeria's dynamic environment, MM providers are required to constantly assess the individual and evolving challenges, needs and pain-points for each customer segment. This is still going to be the case in the long-term future when basic FI has been achieved in order to avoid that the underprivileged population remains stuck in a state of underbanked in which they have access to a mobile account but cannot afford or access the full spectrum of financial services

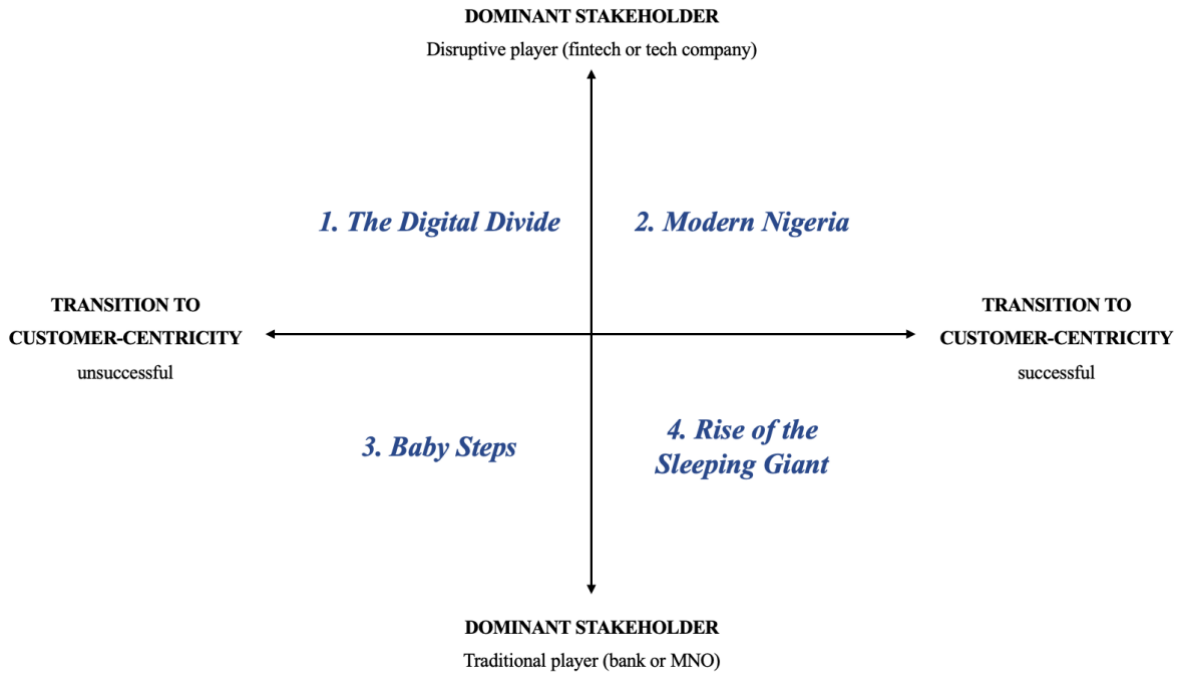
such as credits, savings and insurance as this is in an issue that even some developed economies are struggling with (see Chapter 3.1).

On these grounds, the two determined extrema for the key driver "Transition to customer-centricity" are on the one hand a successful transition where the MM industry was capable of fully financially including every customer segment in the long-term by building valuable partnerships and constantly configuring and individualizing products based on customer needs. The other extreme - unsuccessful transition - refers to a situation in which MM providers have developed innovative products, which however are still difficult to access by BOP groups. Thus, comprehensive FI has not been achieved in this case.

5.2.3 Future Scenarios

The following section will develop four future potential scenarios making use of the previously presented driving forces as a framework, to construct the coherent storylines (see Figure 20). The following section outlines four distinct scenarios guided by the two key drivers, namely (1) the dominant MM value-chain model, and (2) the transition to customer centricity. Besides, further identified drivers of the long list (see Appendix 10) will influence the outcome of the scenarios.

Figure 20: Future Scenarios



Source: Own illustration

The Digital Divide

In The Digital Divide, the fintech-led digital push happens too fast and preempts the digital transformation of rural communities, leaving various rural areas financially excluded.

In this scenario, fintechs lead the MM value chain. Driven by funding, fintechs invest in growth and market capture, scale quickly and become profitable over time. Technological advances enable them to develop new digital business models and offer data-based services that go far beyond basic MM. As an ecosystem orchestrator, their portfolio includes adjacencies such as sharing economy models and e-commerce. Skills that cannot be developed are acquired or obtained via partnerships with banks or MNOs. With a political will to drive FI, regulators have singled out fintechs as the key enablers. Banks fail to compete due to a lack of focus on technology and act only as deposit takers. After significant growth, MNOs face renewed regulatory constraints by the CBN due to an emerging risk of monopoly. Besides, they are unable to offer adjacent services on their own and their main advantage of distribution through local agents is losing value due to a shift to mostly digital transactions in many parts of Nigeria. This limits their role to that of the channel provider.

However, the transition to customer-centric product development across all segments is unsuccessful due to a variety of reasons. First, the digital infrastructure is not evolving with the fintechs and is thus unable to support the widespread adoption of innovative products. Despite the political will, the government fails to strategically delegate its own responsibilities effectively across the three levels, i.e., local, state and federal. These involve the development of education and social systems, including programs for financial literacy aimed at vulnerable groups such as the populous north and women. In addition, large-scale broadband and fiber-optic expansion, and thus stable internet coverage, is being neglected, making network reliability a problem. Further the lack of widely used Digital ID is a problem. Despite the high smartphone penetration, these underlying problems hinder adoption. Second, fintechs do not engage in constructive collaboration and effectively develop offerings for (sub)urban segments. Products that are not tailored to the diverse needs of vulnerable groups across Nigeria to exit the state of being "underbanked" and are therefore mainly used by the young, growing middle and upper classes. The lack of incremental knowledge and trust building in formal institutions even negatively reinforces and widens inequality and gender gaps.

The result is an ever-wealthier urban Nigeria, but at the same time a hardened core of financially excluded people who remain more disconnected than ever - a deep digital divide.

Modern Nigeria

Similar to the previous scenario, also here (fin)tech-led business models were able to take the lead in the MM market and helped creating a new modern digital era in the country's history that is setting an example for many other emerging economies. Contactless payments, ecommerce, e-wallets, digital credit and insurance provision through mobile applications have become the norm even in more rural areas of the country.

This time, fintechs followed a more customer-centric approach that included products that are tailored to the current challenges of low-income groups. In fact, fintechs were able to offer more affordable and innovative financial products than their formal institutional counterparts. In line with fintechs customer-centric philosophy, they entered constructive partnerships with various stakeholders to build an environment that fosters financial and digital inclusion. DFI became a national imperative and governmental institutions on a local, state and federal level are working closely together with fintechs, MNOs and other players to address underlying challenges of underprivileged individuals such as gender gaps and financial illiteracy and stimulate the expansion of a digital infrastructure including an advanced broadband and smartphone penetration.

Nigeria has become an inclusive digital economy, in which lower-income households were given the attention, the time and tools to trust and get used to digital products and are now active participants in the economy and capable of taking advantage of financial services depending on their economic status. In this financial ecosystem, MNOs, as the CBN continued to suppress the development of an MNO-led monopoly, have concentrated on the supply of an efficient mobile and digital network. Banks, on the other hand, have entered partnerships with leading fintechs and are utilizing their expertise in providing saving, lending and credit solutions in an open platform format.

In this scenario, Nigeria has kept its promise of becoming one of Africa's most progressive economies and most important hubs for technological solutions relevant for the challenges of emerging countries.

Baby Steps

In the "Baby steps" scenario, MNOs and banks successfully collaborate, coexist and this time prevail over fintechs. However, they fail to design their products in a way that enables BoP groups to achieve full bank status.

Subsequent to PSB approval, MNOs leverage their distribution advantages, customer base and experience in SSA and significantly expand the number of people with access to basic financial services in rural areas. Due to the high fragmentation of the banking market relative to the telco market and the resulting disadvantages, banks coexist in the MM scene only as a complement to MNOs. Apart from holding deposits, they offer adjacent financial products such as loans, but also new digital services developed by their fintech units and cross-sell those to telco users. Turning to fintechs, some are positioned as mid-sized niche players that partner with MNOs and focus on single verticals (e.g., payments, savings), geographies (e.g., Northern Nigeria), or segments (e.g., SMEs) (EFInA, 2020). Yet, most fail due to skill gaps as talent continues to migrate to developed countries. Moreover, despite the presence of a regulatory sandbox, growing compliance requirements in cybersecurity and consumer protection present barriers. Similarly, large foreign tech firms face these burdens, eager to transfer Western products to Nigerian but underestimate the need to understand the local context.

However, MNOs and banks fail to transition to customer segment-centric product development. They fail to exploit the gap left by weakened fintechs to become the key enabler of a Modern Nigeria. Despite offering microcredit and new digital products to rural communities, barriers to DFI such as financial illiteracy and lack of digital infrastructure hinder uptake. For years, the focus was on access to basic financial products following the success of M-Pesa. While this may be the correct order, focusing on DFI in parallel could have driven important underlying issues. In addition, the problem of affordability of services has not been solved, as banks lack the ability to innovate and offer affordable and customized DFS. As a result, many offerings exclude large vulnerable groups. Ultimately, the large emerging demand for non-financial ancillary products cannot be met by both parties.

In this scenario, Nigeria's expansion of MM gives large parts of the population access to basic financial products but leaves them stuck in the state of being underbanked. While this is a big step forward for Nigeria in FI, it has shifted the problem somewhat toward DFI. With "baby steps", the gaps in society have been narrowed, but they remain.

Rise of the Sleeping Giant

When talking about the success of MM in African countries, Nigeria was referred to as a sleeping giant, as it is one of the continent's biggest economies, however an extensive adoption of MM services, such as M-Pesa in Kenya, was never replicated and financial exclusion was considerably high. As discussed, this was mainly the case because the CBN did not grant PSB licenses to MNOs which were thus unable to leverage their network for MM services. In this scenario, the sleeping giant has woken up.

In order to accelerate the FI agenda, the CBN approved telcos the long awaited PSB license. Therefore, MTN and Airtel, for instance, were able to use their already existing comprehensive network to launch their MM services on a large scale and quickly deducted market share from fintechs who were dominating the market up until this point. Newly entering tech firms were not able to gain the trust of the population in the same manner as MNOs and banks did partly due to their limited local knowledge on the business environment and customer needs. Another reason is that the digital infrastructure did not evolve as efficiently as in scenario 2 (Modern Nigeria). As a consequence, the market was not ready for the adoption of advanced DFS.

The bank-led model is more prominent in urban areas, where the infrastructure is more mature and better developed. However, in a collaborative environment, governmental institutions, banks, MNOs and fintech designed an ecosystem which was in the position of bringing financial products to the customer base that even reached un- and underbanked parts of the population by leveraging their networks and long-term presence in the country. Once every citizen had been provided with a financial account, industry players continuously adapted their products to keep up with the technological development, but also with low-income households' evolving challenges. The fintech-led model might not have prevailed as the leading value chain model in this scenario, but fintechs are still an important part of the financial ecosystem by offering their innovative technology know-how mainly as B2B providers to improve certain sectors in the financial ecosystem such as for example payment technologies.

5.3 Case Company Interviews

After having designed the four scenarios, the authors want to evaluate the relevance of the scenario for the strategic orientation of fintechs in the MM industry. Therefore, they conducted two case company interviews with representatives from Paga and OPay, the currently two biggest MM fintechs in Nigeria. The authors talked to Sharifah Balogun (SB), Business Development Manager at Paga, and Moses Sule (MS), Online Payment and Retail Acquiring Vice President at OPay[5]. During the interviews, the authors presented their derived findings on the key driving forces and the scenarios and asked the interviewees to assess the relevance of these scenarios and formulate strategic implications for the fintech they are working for and the MM industry as a whole. To receive an unbiased response, the interviewees were also asked to describe their viewpoints on the future opportunities and challenges for fintechs and their expectations on the future role of fintechs before the scenarios were presented. Lastly, the authors further tried to determine, how relevant strategic forecasting is in the companies' strategic planning approaches.

With the help of the participants' valuable insights, the authors were able to verify the scenarios from a business perspective and uncover strengths and weaknesses. In addition, the case company interviews added additional perspectives from industry players and their strategic orientation in Nigeria's volatile market.

5.3.1 Case Companies

Paga company profile

The fintech Paga is an MMO that started to launch its services in Nigeria in 2012 after its foundation in 2009. Their primary focus lays on the reduction of cash transactions and the provision of frictionless access to financial services in emerging countries. As one of the country's most successful MM providers, the fintech continues to expand its operation in and outside of Nigeria. As of July 2021, Paga serves over 14 m customers and operates more than 28,000 agents. (Paga, 2021) Paga's product portfolio comprises a mobile wallet that facilitates payments, money transfers, bill payments and remittances. Customers can access those services through their mobile phones, USSD, participating agents and through Paga's web version. (EFInA, 2020; Paga, 2021) The fintech is determined to continuously improve and develop their services by partnering with governmental

[5] The interviewees agreed that their given name and the name of the company may be used in the context of this thesis

institutions and international FSPs, such as VISA (Bright, 2020; EFInA, 2020). The company's financial services and products have been well adopted by Nigerians and Paga's business has been growing extensively after receiving a total funding of $36.7 m raised over 3 rounds (Crunchbase, 2021). Based on its success story in Nigeria, the company now has concrete expansion plans for bringing its services to Ethiopia, Africa's second largest market after Nigeria, and Mexico (Ayeni, 2021).

OPay company profile

OPay, Opera-founded and Lagos-based fintech startup, can be considered part of the third wave of Nigerian fintechs known as Fintechs 3.0, referred to as ecosystem orchestrators that offer a full range of financial and non-financial services (EFInA, 2020; OPay, 2021). Founded in 2018, OPay offers its users traditional MM services as a wallet allowing them to make payments and money transfers via agents, USSD and apps (GSMA, 2021a). Today, the company has over 300,000 agents across Nigeria (MS). As part of their "multi-product super app strategy" (Jake Bright, 2020) they offer services beyond the wallet both financial services such as loans (OKash) and savings (OWealth), as well as non-financial services such as transportation (ORide) and food delivery (OFood). The firm raised $170 m in two funding rounds from mainly Chinese investors and is reportedly expected to raise $400 m at a valuation of over $1.5 b (Kene-Okafor, 2021). Using a scalable B2C business model, this deep funding pool paired with cross-subsidies enables OPay to run radical discount campaigns, scale fast, expand and attract new mass and youth customers. In addition, there is a good product-market fit as they have identified clear unmet customer needs in a promising untapped market (EFInA, 2020). This translates into high awareness and user adoption, resulting in $2 b total transaction value in 2020 amidst the pandemic (BI Africa, 2021). Overall, OPay views its solutions as a channel to drive FI.

5.3.2 Scenario Review

Fintech view on the future of MM in Nigeria

Before the interviewers presented the derived scenarios, the interviewees were asked to discuss their expectations for the future of MM by elaborating on potential threats and opportunities for the respective company and expressing their opinion on the future role of fintechs.

Concerning threats, both interviewees mentioned the impact of decisions by the regulators even though they were referring to different aspects of the regulator's - the CBN - decision making. S.B. criticized the CBN's inability to put the customer in focus and, thus, implement regulations that allow MMOs to provide the services that are needed by customers. In her opinion, the fact that the CBN did not allow the MNO-led model is one of the reasons why Nigeria is "lagging behind with respect to catching up with our FI strategy." While Paga sees the MNO-led model as an opportunity for the country to meet FI goals, OPay is concerned about the CBN allowing telcos to play. Due to telcos already established network and developed MM technology that they have implemented in other countries, they would be able to take significant pieces of the market share away from current market leaders such as Paga and Opay (MS).

In addition, SB mentioned that she fears MMOs will have difficulties in acquiring adequate capabilities to mine data in order to get to know their customer (e.g., analyze bounce rates) and to find potential synergies between touchpoints. Because of Nigeria's dynamic customer base, a "one-fits-all" solution does not exist. Therefore, the proficient analysis of data sets will be essential in designing customer-centric products (SB).

When discussing opportunities, several points were mentioned. First, the importance of regulators was stressed again. If the CBN is able to consider underlying issues such as poverty and the lack of a digital identity in their policy making and see the potential in MMOs becoming the link between rural, peri urban and war areas, they can be instrumental in supporting MMOs in providing the required financial services (SB). Still, it was positively acknowledged MMOs such as Paga and OPay are increasing awareness and adoption of MM by leveraging their growing agent network (SB).

Second, opportunities resulting from technological advancements were brought up. With smartphones becoming more affordable (in Nigeria available for as little as ca. 20€) and consequently experiencing an increasing adoption rate, super apps that provide customers with a bank account and other non-financial services such as ride-hailing are gaining growing significance. A digital wallet in this context requires lower KYC requirement as the mobile phone number is used as a means of

identification and is capable of supplying users with a debit card, which they can make purchases with and manage their finance without any interaction with a physical agent (MS).

Regarding the future role of fintechs, both interview experts agreed that fintechs' competitive advantage is their ability to use technology to develop financial solutions. As soon as fintech enters the market, accessibility, affordability, and objectivity will follow (SB). MS points out that fintechs will always be able to serve customers independent of the customer's preferred MNO or bank as they are aiming at leveraging "any API to provide services to the consumer just to make life easier […]". He views fintechs as collaborators providing the platform to connect MNOs, banks and customers. SB however criticized again that the CBN tends to prioritize the interests of commercial banks and is not giving fintechs the required support regardless of their potential contribution to Nigeria's financial ecosystem.

Scenario evaluation

An evaluation of the scenarios' reality and practicability must begin with an assessment of the underlying drivers, i.e., customer centricity and the dominant value chain model. Even before presenting the scenarios, it became evident that the interviewees touched upon similar aspects as the external experts such as the importance of regulators, the possibility of the MNO- and bank-led value chain model dominating the market and the central role of FSPs being capable of developing customer centric financial products and services.

Regarding the first driver, customer-centricity is key to understand the core obstacles to the basic needs of remote consumer and find innovative solutions to overcome them (MS, SB). Further, focusing on the needs of vulnerable people forms the basis for various activities, critical to MM development. It is the guide for each player in the value chain in building the collaborative ecosystem, but also for regulators to implement facilitating policies (SB).

In view of the second driver, the opinion is inconsistent. While OPay predicts MNOs to play a subordinate role, Paga envisions MNOs to be key to the MM future in Nigeria, as outlined above. This is based on a potential collaborative ecosystem in which players would complement each other, create synergies, and jointly serve the customer (SB). In line with the idea of the fintech 2.0 era (EFInA, 2020), this would perfectly fit Paga's strength of focusing on specific verticals. OPay, however, sees a future in which the PSB licenses may hinder the uptake of MNOs (MS). The CBN strategically prohibited PSBs to give out loans, which is key to a bank's monetization. This may be a central reason for MNOs not actively engaging in Nigerian MM. However, as noted above, MS

emphasized that allowing MNOs to operate without PSB would pose a major threat to fintechs. Similarly, concerning the role of the banks, the opinions diverge. Paga perceives banks as not being innovative and transformative enough to compete (SB). OPay, on the other hand, considers banks, more specifically their separate fintech entities, as having the potential to become a serious competitor to fintechs in the future (MS). This disagreement concerning the future relevant player highlights the relevance as well as the uncertainty of the driver.

According to the experts, a **Digital Divide** is realistic narrative for the future MM space. Specifically, addressing underlying problems was emphasized which, would otherwise lead to the paradox of "bringing savings to people who do not have money", leaving the root causes unsolved. Besides, aspects such as building a digital infrastructure, educating customers, and communicating value propositions to effectively serve rural communities were underlined. (SB)

OPay regards the **Modern Nigeria** as the most favorable scenario (MS), most likely motivated by the company's strategy. As noted above, OPay is an ecosystem player of the fintech 3.0 era (EFInA, 2020) that seeks to scale and deploys its super app to give customers access to a wide range of services. As the dominant player in the value chain and owning the infrastructure, this strategy thrives. Thus, this future is a reality that is very close to OPay's vision, validating the Modern Nigeria scenario.

The **Baby Steps** scenario occurs when both the MNOs fail to monetize their PSBs and the CBN would disapprove the banks' fintech spin-offs. An uncertain but realistic outcome according to the experts. The complex structure of those players would impede their ability to develop customer-centric products. Particularly banks lack agility as lengthy internal regulatory processes slow them down. A potential scenario in which MM may progress in "infinite" baby steps. (MS)

The opposite would be the case if banks were to obtain approval for their separate fintech entities, as in the **Rise of the Sleeping Giant**. These spin-offs could escape from the rigid structures of the bank, while benefiting from the bank's advantages such as MM experience, the customer base, the network, and trust. Thereby they could become a very strong player in the market, explaining why OPay sees this scenario as the least favorable. In contrast, as expected, Paga regards this scenario as the most favorable. In line with their idea of an MNO-led ecosystem, each player would have its niche and fintechs would connect the players enabling open banking[6] and would focus on payments and money transfer (SB).

[6] Open banking can be defined as a collaborative model in which banking data is shared through APIs between two or more unaffiliated parties to deliver enhanced capabilities to the marketplace (Brodsky & Oakes, 2017)

Across scenarios, experts varied in their interpretations of the outcome, reflecting both the different visions of the companies and the uncertainty of the future. Nevertheless, the scenarios and their imperatives were assessed to be useful and inherently realistic, both theoretically and in practice. The conversation with OPay provides an example of their usability, in which thinking about the future in scenarios revealed a new perspective. Initially, OPay deemed a scenario in which banks and/or MNOs would dominate and transition to customer centricity as almost impossible (MS). However, when this assumption was reversed and the aspect of having separate fintech entities was raised as in the case of the Rise of the Sleeping Giant, the view shifted, especially in the context of the historical relevance of banks in Nigerian MM. Thinking in extremes eventually led to the identification of a realistic and adverse future market situation for OPay for which the company should strategically prepare today.

Finally, all scenarios emphasized the importance of one stakeholder: the regulator. Regulators in Modern Nigeria as those who could hinder progress (SB). In Rise of the Sleeping Giant as to the CBN's proximity to the banks, which has proven to be a regulatory protection of the banks in the past and could be a key advantage in the future (MS). The regulatory landscape is a dynamic determinant that can significantly influence the progress and can lead to both a successful and an unsuccessful transition to customer centricity (MS). The role of regulators is particularly relevant in the Nigerian context and should therefore be given special consideration across scenarios.

Strategic implications

After having talked about the relevance of the different aspects of the presented scenarios, the interviewees were asked whether they can draw any strategic implications for the fintech they are working for and fintechs in general.

SB made very clear that Paga is not aiming at offering the full solution and being the number one in the market. They rather see themselves as piece in a bigger puzzle trying to advance FI. While Paga is not afraid of MNOs entering the market on a large scale, as they hope to build a collaborative financial ecosystem, OPay does regard MNOs and potentially successful fintech branches of traditional banks as a threat to its business. It became apparent that so far OPay does not seem to have specific strategies in place to meet this threat of competitive new entrants (MS). Nevertheless, MS made it clear before that he does not believe that for instance banks will be able to transform in a way that they become a serious threat to OPay's comprehensive and technologically advanced product portfolio and platform. Both were at one with each other that the key enablers for staying in the market

long-term is focusing on the individual needs of customers and continuous research and development of how technology can be beneficial in reaching this goal (MS, SB). This is why they are focusing most of their resources on building state-of-the-art financial platforms which will stay relevant in Nigeria's and other emerging countries' agile market environment.

When it comes to organizational measures, SB explained that Paga tries to create passion around serving the customer and employees are making sure that every newly entering colleague is aware of their mission and confident of it just as much as the CEO.

The experts also believe that fintechs such as Paga and OPay have a slight advantage compared to MNOs and banks in terms of financially including the un- and underbanked due to the positive awareness that they have created through their widespread agent networks reaching even the most rural areas, which they should continue to leverage on in the future (SB).

Strategic forecasting in Nigerian fintechs

Examining the extent to which the companies are incorporating the identified drivers into their strategic forecasts or plans, it became clear that customer centricity is at the core of their value propositions. Both Paga and OPay pursue customer-centric product development as an essential part of their consumer-oriented business model (SB; MS). Driven by the goal to solve financial problems "the future is not to serve people […] in Lagos, it is to serve the people who are in remote areas, who you can charge a fee that people won't worry about." (MS).

Using the example of OPay, aiming for the Modern Nigeria, the company specific strategic activities with which they contribute to building the underlying infrastructure for the future. First, OPay offers adjacent services such as savings and loans directly through their platform. This was enabled by the new July 2021 MM guidelines, permitting the services without a third party. Second, OPay partners with banks for POS terminals for agency banking and debit cards, providing technology and their agent network. The proliferation of feature phones lowers the barrier, as people can now use their phones to achieve tier-one KYC status and obtain a debit card from OPay, facilitated by agents educating customers. Furthermore, these collaborations build trust, necessary for first-time customers interacting with fintechs. Third, OPay is advancing digital infrastructure by enabling micro-retailers to accept digital micro-payments. By handing out POS terminals, OPay enables remote customers to make digital payments with their wallets. (MS) Similarly, Paga is active, especially in view of potential partnerships. As examples, they are talking to banks about how

technology can be used to meet customer needs and are amid establishing seamless airtime purchases, where the platform automatically recognizes respective MNO. (SB)

Turning to actual strategic forecasting initiatives, Paga operates a growth division that seeks to identify innovative technology solutions to individual customer needs, particularly within the payments vertical. Moreover, they regularly conduct analyses on external drivers and their future outcomes. (SB) However, these analyses cover a much shorter time horizon than typical strategic forecasts. Both companies indicated that their strategic forecasts extend at least two and maximum five years into the future (SB; MS). The main reason both Nigerian fintechs do not plan further into the future is, once again, regulation. This variable was already highlighted in the scenario evaluation, in which it also played a central role. The Nigerian context is "harsher" than other SSA countries and therefore regulators need to act as principals and formulate even stricter regulations, especially to protect the innocent part of the population. (MS) For companies, this creates a dependency on regulators that require them to navigate from "year to year" in some times (MS). This adds another layer of complexity and unreliability to an already uncertain future environment.

Chapter 6: Discussion

The data analyzed in the previous chapter will be discussed in three steps. First, the key findings will be presented by connecting them to the RQ. To reiterate, the RQ asks "how the macro- and meso-environment of the Nigerian MM industry change by 2035 and what are the implications for fintechs?" Therefore, the authors are going to begin with introducing five decisive themes that are expected to determine the future evolution of the MM industry in Nigeria and that have been derived from the scenario analysis and the company case interviews. Following this, resulting implications for the strategic orientation of fintechs operating in this environment will be drawn.

Once the RQ has been answered in-depth, the findings will be put into a broader context to assess their transferability to other emerging countries. Then, the authors will critically acknowledge and evaluate the limitations of the applied methodology and research progress. Lastly, various recommendations for future research will be highlighted.

6.1 Key Findings

6.1.1 Key topics determining the future Nigerian mobile money industry

In view of the future external environment, the analysis identified five overarching topics. These comprise customer centricity, collaborative ecosystem, digital society, regulation, and market volatility and are explained in more detail below.

Customer centricity

The first key finding of our research is the relevance of customer centricity. The excluded population in Nigeria's rural areas is highly heterogeneous, lacking trust in FSPs and thus characterized by a myriad of variables, to which new and evolving needs are added at an accelerating pace. Accessibility, affordability, and ease of use of financial products and services are critical to rural penetration, factors also promoted by the Bill & Melinda Gates Foundation (2021). Therefore, especially in Nigeria, product development that prioritizes and identifies the various unmet customer needs to address them with customized solutions is the key mechanism to provide excluded communities with access to the full spectrum of financial services. Given the current lack of a clear customer value proposition across players in Nigeria, the gradual transition to customer centricity should start today to ensure proper implementation across the board and have a realistic chance of achieving the 2024 FI targets.

Collaborative ecosystem

The creation of a collaborative ecosystem emerged as another key topic. Already in 2021, no player has all capabilities to fully exploit future market opportunities. Therefore, in an increasingly digital Nigeria, a robust ecosystem focused on synergy-generating strategic partnerships and arrangements along core competencies among key players will be elemental. Along with MMOs, capital providers, regulators, and governments across all levels are important pieces of the ecosystem. In this context, contrary to the findings of Pirchio and Evans' (2015) study, which identified MNOs as the most important MMO for MM success, the fintech-led value chain model centered on partnerships will gain relevance in the future to collectively serve the customer. While collaborations have been identified as an effective means to achieve FI (ACI, 2019; UNSGSA, 2021), our analysis stresses the increased focus on data exchange for customer centricity and the sharing of digital and physical infrastructure in the ecosystem, enabled by platform interoperability and open banking.

Digital society

The role of the digital society is another important finding, the relevance of which is twofold. First, the term represents the need for a robust digital infrastructure extending to remote areas. Besides ongoing technological penetration, the expansion of broadband and 5G remain crucial for the deployment of DFS. Second, it further illustrates the importance of a digital awareness within the population. The acceptance of DFS will be significantly dependent on the extent to which a digital identity is anchored in society. These issues will determine how effectively the growing younger and more digitally savvy population and the surge in low-cost smartphones can be harnessed to drive the adoption of solutions such as digital wallets and digital IDs among excluded segments. Our analyses confirm the shift from FI to DFI already recognized in the literature (ACI, 2019; UNSGSA, 2021), and specifically add the value and need of an embedded digital mindset across population segments.

Regulation

Without exception, all experts highlighted the role of regulation as the decisive factor for the future of MM. An enabling regulatory environment is key to the growth of MM. Particularly in the context of technological advances, this involves effective policymaking across levels of government that addresses underlying issues of FI, the implementation of a regulatory sandbox that fosters innovation, and transparent consumer protection laws. The effectiveness in excluding MNOs, as well as the paradigm shift brought about by the introduction of PSB licenses, clearly demonstrate the landmark

influence of regulation, which will continue to be pivotal in the future. Our finding underscores Pirchio and Evans' (2015) key finding of the need for a favorable regulatory framework, but further stresses the need for proactive and regular adaptation to a digital age to harness Nigeria's potential.

Market volatility

Nigeria represents a particularly volatile and thus unpredictable market, even among developing countries. Particularly, players in the financial services business will face an increasingly turbulent environment to navigate through. Beyond the challenges for financial institutions in developing countries described by Buckley & Webster (2016), the sheer number of 85 relevant drivers identified strikingly demonstrates the plethora of variables that MMOs in Nigeria must adhere to. The results of the scenario analysis illustrate the divergence in expectations of future realities. Moreover, regulators responding to market dynamics at very short notice add another layer of unpredictability to the Nigerian environment.

6.1.2 Strategic implications for fintechs

In light of the key themes presented that influence the future direction of the MM market, the following strategic implications for fintechs operating in the Nigerian market were derived. These include using technology as an enabler, building meaningful strategic partnerships, leveraging the existing network, and creating an organizational environment that fosters innovation and disruption.

Use technology as a key enabler

The competitive advantage of fintechs in Nigeria compared to banks and MNOs are their technological capabilities. With the digital infrastructure improving, fintechs' financial solutions will play a central role in Nigeria's FI progress. No matter fintechs' strategic orientation, whether they aspire to become fully integrated multi-service provider – a Super App – such as OPay or aim at only becoming one contributor to a collaborative ecosystem, such as Paga (EFInA, 2020; Company Case Interview), they need to utilize those technological capabilities as a key enabler in designing customer centric products. By applying advanced analytical techniques such as deep learning and artificial intelligence they can focus on getting to know their customer better. Moreover, they can capitalize extracted data points in finding new niche markets that they can serve. Due to fintechs' agnostic characteristic, meaning that they are not dependent on serving the B2C market, but are also capable of offering solutions in the B2B market, they are less vulnerable to changes in the market structure

and competent to seek out opportunities in various parts of the market. Particularly, in the B2B segment, fintechs have the potential of becoming the bridge between more traditional MMOs players, such as MNOs and banks, and more disruptive fintech players. Their ability to leverage APIs and build reliable, secure, and advanced platforms and links to other industry players will become essential in designing an open financial ecosystem that facilitates the DFI of every customer segment.

Build meaningful strategic partnerships

As mentioned above, if Nigeria wants to be successful in reaching its goal of financially including every citizen, the establishment of effective partnerships will become a key determinator. Both, inside and outside the financial industry, fintechs should evaluate different players on how they could complement each other's businesses by benefiting from the counterpart's strengths and leveling out one's weaknesses. A collaborative environment with governmental institutions and regulators is equally inevitable for two main reasons. First, fintechs will not be able to tackle underlying issues such as poverty, lack of education and digital exclusion by themselves. Here, the intervention of governmentally supported programs will be required. Second, a more collaborative relationship with regulators can be instrumental in the implementation of policies that ease fintechs' work and facilitates them to offer financial products that the customer base necessitates. In this collaborative environment, fintechs can actively contribute to the efficient sharing and analysis of customer data which will be essential in detecting customer's pain points and adapt the ecosystem accordingly.

Leverage existing networks

The aspects awareness and trust that fintechs like Paga and OPay have established in the past years should not be neglected. They have built extensive agent networks that reach even the most remote areas. If they continue to grow and cultivate their network, the resulting exposure can become invaluable when customers must choose between different providers. In addition, fintechs serving the un- and underbanked population have been able to gain these customers' trust. One of the reasons why individuals remain unbanked is the lack of trust they have in financial institutions (Demirgüç-Kunt et al., 2018). Fintechs such as Paga, however, have been able to offer affordable, accessible, and secure financial products and have proven to store and transfer users' money safely. Besides, they have become a reliable source of income for shop owners that have considered becoming parts of their agent network. This reputation of a trustworthy DFS and employer is a quality that for instance banks will struggle to establish in more rural or peri-urban areas. Therefore, by taking advantage of

banks' lack of presence in parts of the country where the majority of the un- and underbanked population lives, fintechs can build a solid customer base that will remain loyal in the long-term and can serve as competitive advantage when new players enter the market.

Create an organizational environment that fosters innovation and disruption

The organizational structure of fintechs has a fundamental impact on their future success. In response to Nigeria's dynamic market environment, it makes only sense to have a similarly agile organizational set up. Regulatory conditions can change from one day to another just as the needs of customers. Being able to adapt to this volatile market is how fintechs can set themselves apart from legacy banks and MNOs, which have shown difficulties in transforming due to a high degree of bureaucracy. Many levels of hierarchy make legacy incumbents highly rigid which impedes them from developing and implementing more disruptive solutions. In contrast to this, fintechs have the opportunity to rely on a flat hierarchical structure that fosters creativity and innovativeness. In this context, an organizational culture that is able to create passion and enthusiasm about the company's mission are additional beneficial components in the employees' commitment to design products and services tailored to the customers' requirements. This is especially important since the challenges surrounding FI will not be solved overnight but will remain an undertaking that will occupy players until the unforeseeable future.

6.2 Transferability to other emerging countries

The MM market environment in Nigeria is quite peculiar especially due to the regulatory conditions that are less rigorous in other emerging countries. As traditional MM providers such as MNOs were not able to thrive in Nigeria and banks were not proficient enough in developing the capabilities required by the unbanked customer segments, it became the birthplace for fintechs which are now primarily serving the market. Even though in other emerging countries fintechs are currently not as relevant and regulators are more flexible, several findings can still be applied to the context of other emerging countries' MM market.

The topics surrounding the importance of customer centric product development, the aspiration of establishing a collaborative financial ecosystem, the trend towards a more digitally versed society and the challenges that come with emerging markets' characteristically more unstable environment are all factors that will similarly determine the future evolution of the MM industry in other geographic contexts. Just as in Nigeria, MMOs are required to attend to the underprivileged

populations constantly evolving needs that are forecasted to become even more complex with customers becoming not only economically but also digitally more advanced. However, currently dominating MMO players may lack the technological capabilities to build an ecosystem that is capable of supplying affordable, accessible and secure financial services. They will look for competent partners that can level out their technological deficiencies and with whom they can create new synergies in the financial service sector. This is where fintechs can tap into the market. Their efficiency in building integrative platforms will also help accelerate the development of open banking ecosystems in other emerging economies. Aside from that, even though in most countries the MM market is momentarily dominated by MNO-led or bank-led value chain model, multi-service provider in form of Super Apps could take advantage of the present movement toward an increasingly digital future. With smartphones becoming more affordable, the demand for app-based solutions is likely to increase and it is questionable whether MNOs or banks will be able to compete with so called TechFin firms specialized in building platform-based Super Apps comparable to Grab in Indonesia or OPay in Nigeria (EFInA, 2020). MNOs and particularly banks will have to realign their strategies in a way that allows bold and disruptive transformation in order to be able to compete and find their place in this digital future.

Nigeria's fintechs should try to explore other Sub-Saharan or emerging countries to identify new opportunities to scale their business as for instance Paga is doing in Ethiopia and Mexico. Their competitive advantage will lie in the fact that their products and services are tailored to the requirements of a developing market that is typically more volatile and unpredictable than in developed countries. Through their experience, fintechs like Paga and OPay are aware of the challenges that FSPs are facing in emerging countries, for instance income, educational, gender, and infrastructural gaps, and are therefore optimally equipped to acknowledge those in their solution offering.

6.3 Limitations

This chapter discusses the limitations of our research findings and evaluates their implications relative to the respective quality criteria. It starts by presenting limitations related to the methodology, followed by an outline of constraints encountered during the research process.

6.3.1 Methodological limitations

First, the criteria of transferability should be recalled. Besides mechanisms such as specifically outlining exact context, the expert selection, and the research design (Jensen, 2008), the approach was to elevate the framing of the research to increase its relevance beyond a single context. While this allowed to formulate certain implications to be transferred to other emerging markets in Chapter 6.2, the level of abstraction remains limited. By focusing on the specifics of one setting, Nigeria, we acknowledge that this is indeed a limitation.

Second, we will discuss validity. We recognize that the chosen time frame of 10-15 years is limiting our results. Participants expressed difficulty thinking more than a decade ahead, partly due to the above-average volatility of the Nigerian context. In the sense that "most people overestimate what they can do in a year and underestimate what they can do in ten years" (Bill Gates), this limits the validity in that the identified findings may become relevant sooner than predicted. Nonetheless, the topics and implications remain significant, but possibly gain urgency. In addition, the sheer uncertainty of the future limits the validity of the scenarios. Even though scenario planning acknowledges several possible truths and thus does not claim to be absolute, we want to highlight that there may be other significant factors that are not yet known and may become central in the future. It must therefore be reiterated that the goal of this study is not to provide an accurate reflection of the real future, but to provide key topics and implications that can guide stakeholders. Another aspect is the adequacy of sources. The study is not exclusively based on scientific sources as in some cases alternative sources such as news articles or reports were deemed more suitable. Our research has both a scientific claim and a practical orientation, thus, in our case, these sources served to provide supplementary information for a holistic understanding of the setting. For instance, for mapping the current market structure, the academic sources were often insufficiently recent, partly a result of the high volatility of the Nigerian market, which led us to consider them inappropriate for our purpose.

Third, the results entail limitations in terms of objectivity. Although the authors integrated expert opinions in the driver identification (scanning) and scenario validation (visioning) phases, we cannot guarantee entirely unbiased research in scenario development (forecasting) due to the authors'

own interpretations. Therefore, we acknowledge that subjectivity influences our findings, but were aware throughout the process that this is desirable in qualitative research (Miller, 2021a), and consistently intended to minimize validity gaps by consulting additional secondary literature.

6.3.2 Research process limitations

The primary obstacle during the research process was geographic distance. First, distance during data collection in terms of distance from the research context, Nigeria. Despite digital channels commonly used among researchers and professionals in Lagos, we encountered unexpected difficulties in contacting experts. This translated into a low response rate at the outset and long response times during the Delphi study. Contacts in the local network would have been valuable assets in this stage.

Second, geographical distance existed between the researchers due to study-related exchange semesters overseas. In addition to a lack of unrestricted focus due to other parallel academic obligations, time zone differences hampered communication and delayed the overall process.

Third, the pandemic prevented the initially intended field study on site in Nigeria. Especially in developing countries, knowing the local context is crucial, thus talking directly to vulnerable groups would have provided meaningful insights, which would have significantly enriched the quality of the data.

6.4 Future Research

The purpose of this study was to apply qualitative strategic forecasting methods to uncover key topics that will shape the future of MM in Nigeria and derive specific strategic implications for fintech companies operating in the market. This research design allowed us, on the one hand, to explore this topic holistically and extract insights that we trust can add value to both academia and practice. On the other hand, the approach revealed several research gaps related to specific topics that future researchers can target.

First, future research could examine the determinants of an enabling environment for DFS across SSA. Our findings show that in Nigeria the focus on enabling access to basic financial products and services is shifting to providing access to the full spectrum of DFS. Similarly, FI has been forecasted to take the form of a DFI. With increasing digitalization of payments, we can expect to witness similar developments in other SSA countries in the future. A study analyzing the barriers and drivers of DFS would thus be meaningful to proactively support this change from an academic standpoint.

Second, quantitative strategic forecasting could deliver interesting results, particularly in view of increasing digitalization. This thesis deliberately opted for a qualitative research design, partly due to the still limited data quality. With anticipated advances in data availability, future research could, for example, conduct quantitative forecasting in the form of trend analysis focused on Nigeria and, to extend the abstraction, on Kenya comparatively. This approach allows a more precise assessment of the development of specific drivers, such as those relevant to digital infrastructure, such as Internet usage and smartphone penetration.

Third, future research could examine the appropriateness and potential upside of strategic forecasting activities, specifically scenario planning, in developing countries. The analyses indicated that the high market volatility in Nigeria causes fintechs such as OPay or Paga to strategically forecast only two to five years ahead. However, one hypothesis could be that especially in such a context of increased business uncertainty and external dynamics, an understanding of the external environment and possible future scenarios could be a source of competitive advantage.

Finally, fourth, a large-scale field study of factors that enable customer-centric product development in Nigeria would optimally complement our work. Interaction with rural communities on the ground dramatically elevates the understanding of the unmet needs of the vulnerable.

Chapter 7: Conclusion

With the introduction of MM services, the FI agenda has been rapidly moving forward in developing countries. By giving unbanked parts of the population access to basic financial services, they have been given an opportunity to break out of the cycle of poverty. MM enables users to store, send and receive their money safely. Now, MM providers are beginning to add adjacent financial services to the product portfolio such as savings, credits and insurance.

The role model has been the success story of M-Pesa in Kenya, a mobile financial services provider founded by the mobile network provider Safaricom. Other emerging countries have been able to replicate the efficient FI of a considerable part of the unbanked customer segments by introducing similar MM services most of the time led by an MNO or a bank. Interestingly, one of the biggest and most promising emerging economies, Nigeria, did not experience comparable advances in FI. In fact, the country missed its targeted goal of achieving complete FI by 2020 and is still combating one of the world's highest financial exclusion rates. The reason for Nigeria's particular situation is that the CBN has been boycotting the introduction of MM by MNOs by refusing to grant them a PSB license which is required by non-banks to be able to offer financial services. As a result, MNOs could not enter the market on a large scale. However, at the same time traditional banks showed to be ineffective in filling the void. Therefore, fintechs such as Paga and OPay have been tackling the challenges surrounding FI and made it their mission to supply vulnerable groups with affordable, accessible, and secure financial services.

Due to the expected economic rise and fintechs' incomparable standing in Nigeria, a forward-looking approach was chosen. The authors were interested in examining the potential future evolution of the MM industry in this context and how this development could influence the positioning of fintechs. This contextual focus yielded in the subsequent RQ:

How might the macro- and meso-environment of the Nigerian mobile money industry change by 2035 and what are the implications for fintechs?

In order to answer this question, the authors introduced the concept of strategic forecasting. In contrast to traditional forecasting, strategic forecasting concentrates on new and innovative aspects in making strategic recommendations for the future. By combining two strategic forecasting techniques, scenario planning and the Delphi technique, this thesis presented specific future scenarios for the

Nigerian MM industry and evaluated their impact on the FI advancements in the country based on the input of six external industry experts. A timeframe of 10-15 years has been applied as scenario planning encourages to take on a long-term perspective in order to stimulate divergent thinking that takes a variety of aspects into account which may lead to the discovery of new opportunities and unanticipated threats. With the purpose of validating the practicability of the derived scenarios and receiving additional input on industry players' strategic planning approach, the authors conducted two case company interviews with representatives from Paga and OPay, the two most relevant fintechs in Nigeria's MM industry.

Referring to the thesis' thorough analysis, the authors presented five key aspects that are likely to have a substantial influence on the future development of Nigeria's MM industry. First, the relevance of customer-centric product development due to MM users' heterogenous and continuously evolving needs. Second, the importance of establishing a collaborative ecosystem in which players take advantage of the resulting synergy effects from complementing each other's strengths and weaknesses. Third, the undeniable movement towards a more digital society posing new challenges such as the expansion of a digital infrastructure, digital education, and digital identity. Forth, the decisive role of regulators in navigating the implementation of policies that enable MMOs to bring the required financial services to those in need in a timely manner. And lastly, the high degree of market volatility that aggravates the complexity of factors MMOs must adhere to and that makes it virtually impossible to plan long-term.

Based on these determining factors for the industry's future environment, the authors were able to formulate four explicit strategic implications for fintechs that should be taken into accounts to ensure their longevity in this intricate context. It is imperative for fintechs to, firstly, use technology as a key enabler in developing customer centric products and thus reinforcing their competitive advantage. Secondly, they should actively seek out potential partnerships to expediate the establishment of the previously highlighted collaborative financial ecosystem. Thirdly, the authors suggest that fintechs leverage on their existing networks and the consequently resulting customer trust and exposure. Finally, the significance of an agile organizational structure has been stressed that allows fintechs to quickly respond to market changes and fosters creativity and innovativeness as well as passion and commitment.

In addition, the authors were able to show that the attained findings are transferable to a broader context and can be applied to other emerging countries. Even though the regulatory

environment may be more flexible in other countries, the other four key topics derived from the scenario analysis will also influence the future operations of more traditional MM providers namely MNOs and banks that are primarily dominating the market in other developing economies. Here, fintechs will be essential in providing the technological capabilities required to stay competitive in a progressively complex and digital financial environment.

To conclude, this thesis carefully examined the future development of the mobile money industry in Nigeria and was able to extract valuable recommendations for fintechs, active in the market, whose contribution to the country's and the continent's economic growth has only found little attention in the existing literature. Therefore, the findings of this thesis can provide novel insights to industry players on how to strengthen their strategic positioning from a long-term planning perspective.

Bibliography

Aaker, D. (2013). *Strategic Market Management*. John Wiley & Sons.

ACI. (2019). *The Need for Financial Inclusion in Developing Countries*. https://www.aciworldwide.com/blog/the-need-for-financial-inclusion-in-developing-countries

AFI. (2018). Fintech for Financial Inclusion: A Framework for Digital Financial Transformation. *AFI*. https://doi.org/10.2139/ssrn.3245287

AfricArena. (2021). *The State of Tech in Africa 2021*.

Agha, E. (2020). *State of play: Fintech in Nigeria*.

Agur, I., Martinez Peria, S., & Rochon, C. (2020). *Digital Financial Services and the Pandemic: Opportunities and Risks for Emerging and Developing Economies, IMF COVID-19 Special Series*. Goodwin-Groen.

Akins, R. B., Tolson, H., & Cole, B. R. (2005). Stability of response characteristics of a Delphi panel: Application of bootstrap data expansion. In *BMC Medical Research Methodology* (Vol. 5). https://doi.org/10.1186/1471-2288-5-37

Allen & Overy LLP. (2019). *Fintech*.

Alonso, J. A., & Garcimartín, C. (2010). The Determinants of International Quality. More on the Debate. *Journal of International Development*, *25*, 206–226.

Andersson-Manjang, S. K., & Naghavi, N. (2021). *State of the Industry Report on Mobile Money 2021*. www.gsma.com/mobilemoney

Ansoff, I. (1984). *Implanting Strategic Management*. Prentice/Hall International.

Aron, J. (2018). Mobile money and the economy: A review of the evidence. *World Bank Research Observer*, *33*(2), 135–188.

Ayeni, T. (2021, June 10). Nigeria's Paga eyes Ethiopia for expansion, says CEO Tayo Oviosu. *The Africa Report*. https://www.theafricareport.com/95233/paga-is-nigerias-leading-mobile-payments-company-ceo-tayo-oviosu-says/

Aziz, A., & Naima, U. (2021). Rethinking digital financial inclusion: Evidence from Bangladesh. *Technology in Society*, *64*, 1–10. https://doi.org/10.1016/j.techsoc.2020.101509

Barney, J. (1991). Firm Resources and Sustained Competitive Advantage. *Journal of Management*, *17*(1), 99–120. https://doi.org/10.1177/014920639101700108

Barry, T. A., & Tacneng, R. (2014). The impact of governance and institutional quality on MFI outreach and financial performance in Sub-Saharan Africa. *World Development*, *58*, 1–20. https://doi.org/10.1016/j.worlddev.2013.12.006

Bell, W. (1997). *Foundations of future studies - human science for a new era* (Vol. 2). Transaction publishers.

Bertelsmann Stiftung. (2020). *BTI 2020 Country Report*. https://www.bti-project.org/en/reports/country-report-NGA-2020.html#pos3

BI Africa. (2021, March 2). *OPay records $2 billion in total gross transaction value in 2020, shares exciting growth plans for 2021*. Business Insider Africa.

Bill & Melinda Gates Foundation. (2015). *Assessing risk in digital payments*. www.gatesfoundation.org

Bill & Melinda Gates Foundation. (2021). *Financial Services for the poor*. https://www.gatesfoundation.org/our-work/programs/global-growth-and-opportunity/financial-services-for-the-poor

Bishop, P., Hines, A., & Collins, T. (2007). The current state of scenario development: An overview of techniques. *Foresight*, *9*(1), 5–25. https://doi.org/10.1108/14636680710727516

Blades, D., Ferreira, F. H. G., & Lugo, M. A. (2011). The Informal Economy in Developing Countries: An Introduction. *Review of Income and Wealth S1*, *57*(1).

Blench, R. (2020). *An Atlas of Nigerian Languages*. http://www.rogerblench.info/RBOP.htm

Börjeson, L., Höjer, M., Dreborg, K. H., Ekvall, T., & Finnveden, G. (2006). Scenario types and techniques: Towards a user's guide. *Futures*, *38*(7), 723–739. https://doi.org/10.1016/j.futures.2005.12.002

Boshoff, H. (1989). Testing plans against alternative futures. *Long Range Planning*, *22*(5), 69–75. https://doi.org/10.1016/0024-6301(89)90170-2

Bradfield, R., Wright, G., Burt, G., Cairns, G., & Van Der Heijden, K. (2005). The origins and evolution of scenario techniques in long range business planning. *Futures*, *37*(8), 795–812. https://doi.org/10.1016/j.futures.2005.01.003

Bright, Jack. (2020, March 9). Visa partners with Paga on payments and fintech for Africa and abroad. *Techcrunch*. https://techcrunch.com/2020/03/08/visa-partners-with-paga-on-payments-and-fintech-for-africa-and-abroad/?guccounter=1&guce_referrer=aHR0cHM6Ly93d3cuZ29vZ2xlLmNvbS8&guce_referrer_sig=AQAAAHK-I5Nlyqou_StvmsyQb_eLUOEOWfH7o445-Z21yqXI9MJWCcnKOoEjyY1daVyCiSAKZlYtHL7MFacYJgf78MrqT3mZ08i8RymhbsRD8DvZ8Wm6MURJ70cIoDhbXSngwvpKVGBBQwvhlT0XDaTxqs0CivlCbMDSOXU6O18sA9nL

Bright, Jake. (2020, May 15). *Opera's OPay still plans Africa expansion on Nigerian super app*. TechCrunch.

Brodsky, L., & Oakes, L. (2017). *Data sharing and open banking*. https://www.mckinsey.com/industries/financial-services/our-insights/data-sharing-and-open-banking

Brosius, H.-B., Haas, A., & Koschel, F. (2016). *Methoden der empirischen Kommunikationsforschung* (B. Emig-Roller, Ed.; 7th ed.). VS Verlag für Sozialwissenschaftler.

Buckley, R. P., & Webster, S. (2016). FinTech in Developing Countries: Charting New Customer Journeys. *Journal of Financial Transformation*, *44*(2016), 1–19.

Bullini Orlandi, L. (2016). Organizational capabilities in the digital era: Reframing strategic orientation. *Journal of Innovation and Knowledge*, *1*(3), 156–161. https://doi.org/10.1016/j.jik.2016.01.002

Burrell, G., & Morgan, G. (1979). *Sociological Paradigms and Organisational Analysis*. Heinemann.

Campbell, J. (2019, June 21). Nigeria's "Emerging Middle Class" is leaving. *Council of Foreign Affairs*. https://www.cfr.org/blog/nigerias-emerging-middle-class-leaving

Campbell, J. (2020, May 13). Amid Oil Price Collapse, Nigeria is running out of foreign exchange. *Council on Foreign Exchange*. https://www.cfr.org/blog/amid-oil-price-collapse-nigeria-running-out-foreign-exchange

Capon, N., & Hulbert, J. M. (1985). The integration of forecasting and strategic planning. *International Journal of Forecasting*, *1*(2), 123–133.

Cavalli-Sforza, V., & Ortolano, L. (1984). Delphi forecasts of land use; transportation interactions. *Journal of Transportation Engineering*, *110*(3), 324–339.

CBN. (2012). National Financial Inclusion Strategy (Nigeria). *Central Bank of Nigeria*, 58. https://doi.org/https://www.cbn.gov.ng/Out/2013/CCD/NFIS.pdf

CBN. (2015). Regulatory Framework for Mobile Money Services in Nigeria. *Central Bank of Nigeria*.

CBN. (2019). *CBN Financial Inclusion Newsletter*.

CBN. (2020). Guidelines For Licensing and Regulation of Payment Service Banks in Nigeria. *Centra*.

CBN. (2021). Regulatory Framework for Mobile Money Services in Nigeria. *Central Bank of Nigeria*. https://www.cbn.gov.ng/out/2015/bpsd/regulatory framework for mobile money services in nigeria.pdf

CBN, EFInA, & Dalberg. (2019). *Assessment of Women's financial inclusion in Nigeria*. https://www.cbn.gov.ng/out/2020/dfd/assessment%20of%20womens%20financial%20inclusion%20-%20exec%20summary.pdf

Charmaz, K. (2006). *Constructing Grounded Theory - A Practical Guide through Qualitative Analysis* (1st ed.). SAGE Publications.

Chermack, T. J. (2006). Assessing the quality of scenarios in scenario planning. *Futures Research Quarterly*, *Winter*, 23–36.

Chia, R. (2003). Organisation Theory as a Postmodern Science. In H. Tsoukas & C. Knudsen (Eds.), *The Oxford Handbook of Organisation Theory: Meta-Theoretical Perspectives* (1st ed., pp. 113–140). Oxford University Press.

Chironga, M., de Grandis, H., & Zouaoui, Y. (2017). Mobile financial services in Africa: Winning the battle for the customer. *McKinsey & Company*, 6. https://www.mckinsey.com/industries/financial-services/our-insights/mobile-financial-services-in-africa-winning-the-battle-for-the-customer

Chong, A., & Calderon, C. (2000). Institutional Quality and Income Distribution. *Economic Development and Cultural Change*, *48*(4), 761.

Christensen, C. M. (1997). *The innovator's dilemma: the revolutionary book that will change the way you do business*. Harper Business.

Chuen, D. L. K., & Teo, E. G. S. (2015). Emergence of FinTech and the LASIC Principles. *The Journal of Financial Perspectives*, *3*(3), 1–26.

Communications Authority of Kenya. (2019). Number of mobile money transactions in Kenya from 1st quarter 2018 to 3rd quarter 2019 (in millions), by provider. *In Statista*.

Cornish, E. (2003). The wild cards in our future. *The Futurist*, *37*(4), 18–22.

Creemers, T., Murugavel, T., Boutet, F., Omary, O., & Oikawa, T. (2020). *Five Strategies for Mobile-Payment Banking in Africa*. https://www.bcg.com/publications/2020/five-strategies-for-mobile-payment-banking-in-africa

Crunchbase. (2021). *Paga*. https://www.crunchbase.com/organization/paga

Dalkey, N. C. (1967). *Delphi. The RAND Corporation*.

Dany, O., Goyal, R., Schwarz, J., Van den Berg, P., Scortecci, A., & to Baben, S. (2016). Fintechs May Be Corporate Banks' Best "Frenemies." *BCG*, *July*.

David-West, O. (2017). *Digital Financial Services in Nigeria - State of the Market Report 2017*.

David-West, O., Iheanachor, N., & Kelikume, I. (2018). A resource-based view of digital financial services (DFS): An exploratory study of Nigerian providers. *Journal of Business Research*, *88*(2018), 513–526. https://doi.org/10.1016/j.jbusres.2018.01.034

David-West, O., Iheanachor, N., & Umukoro, I. (2020). Sustainable business models for the creation of mobile financial services in Nigeria. *Journal of Innovation and Knowledge*, *5*(2), 105–116. https://doi.org/10.1016/j.jik.2019.03.001

David-West, O., Umukoro, I. O., & Muritala, O. (2017). Adoption and Use of Mobile Money Services in Nigeria. *Encyclopedia of Information Science and Technology*, 2724–2738. https://doi.org/10.4018/978-1-5225-2255-3.ch237

Demirgüç-Kunt, A., Klapper, L., Singer, D., Ansar, S., & Hess, J. (2018). *The Global Findex Database 2017 Measuring Financial Inclusion and the Fintech Revolution*.

Denzin, N. K., & Lincoln, Y. S. (2011). Introduction: The Descipline and Practice of Qualitative Research. In N. K. Denzin & Y. S. Lincoln (Eds.), *The SAGE Handbook of Qualitative Research* (4th ed., pp. 1–19). SAGE Publications.

Denzin, N. K., & Lincoln, Y. S. (2018). *The SAGE Handbook for Qualitative Research* (5th ed.). SAGE Publications.

Dick, B. (2014). Transferability. In D. Coghlan & M. Brydon-Miller (Eds.), *The SAGE Encyclopedia of Action Research* (pp. 786–788). SAGE Publications.

Dietz, M., Olanrewaju, S., Khanna, T., & Rajgopal, K. (2015). Cutting Through the FinTech Noise: Markers of Success, Imperatives For Banks. *McKinsey & Company*, 1–18.

Dixon-Woods, M., Shaw, R. L., Agarwal, S., & Smith, J. A. (2004). The problem of appraising qualitative research. *Quality and Safety in Health Care*, *13*(3), 223–225.

Downey, L. (2020, November 23). Underbanked. *Investopedia*. https://www.investopedia.com/terms/u/underbanked.asp

Drummer, D., Jerenz, A., Siebelt, P., & Thaten, M. (2016). FinTech – Challenges and Opportunities How digitization is transforming the financial sector. *McKinsey & Company*, *May*, 1–7.

Dunkel, K., Rovenich, K., & Koch, J. (2020). How Africa's growing mobile money market is evolving. *EY*, *26*.

Duus, H. J. (1997). *Economic Foundations for an Entrepreneurial Marketing Concept*. *13*(3).

Duus, H. J. (1999). Strategic business market forecasting. *Strategic Change*, *8*(3), 173–182.

Duus, H. J. (2008). *Strategic Forecasting: Theory, Practice and Strategy*. *17*.

Duus, H. J. (2013). Strategic forecasting: Theoretical development and strategic practice. *International Journal of Business Innovation and Research*, *7*(3), 362–378. https://doi.org/10.1504/IJBIR.2013.053636

Duus, H. J. (2016). Strategic scenario construction made easy. *International Journal of Foresight and Innovation Policy*, *11*(1), 167–183. https://doi.org/10.1504/IJFIP.2016.078349

EFInA. (2008). *EFInA Access to Financial Services in Nigeria 2008 Survey Key Findings*.

EFInA. (2010). *EFInA Access to Financial Services in Nigeria 2010 Survey Key Findings*.

EFInA. (2012). *EFInA Access to Financial Services in Nigeria 2012 Survey Key Findings*.

EFInA. (2014). *EFInA Access to Financial Services in Nigeria 2014 Survey Key Findings*.

EFInA. (2016). *EFInA Access to Financial Services in Nigeria 2016 Survey Key Findings*.

EFInA. (2018a). *COVID-19 Fund Launch Webinar*.

EFInA. (2018b). *EFInA Access to Financial Services in Nigeria 2018 Survey Key Findings*.

EFInA. (2018c). *EFInA FinTech Report: Overview and Lessons Learnt from Global FinTech Landscape and Nigerian FinTech Landscape*.

EFInA. (2020). *FinTech Landscape and Impact Assessment Study 2020*.

EFInA. (2021). *EFInA Access to Financial Services in Nigeria 2020 Survey Key Findings*. http://83.222.230.50/assets/Documents/EFInAAccess-to-Financial-Services-in-Nigeria-2010-surveyKey-Findings.pdf?phpMyAdmin=%2CWvBxPNpx0z2BcKe8h2UcHJI%2CXb

EMPEA. (2020). *Trends In Global VC+Tech 2019: EMPEA's Inaugural Report On Venture-Backed Startups Across EM*.

Endurance, O. (2020). *CBN issues licence to Glo, 9Mobile, UP subsidiaries for PSB services*. BusinessDay.

Enelx. (2021). *What Are the Advantages of a Fiber Optic Network?* Enelx. https://corporate.enelx.com/en/question-and-answers/what-are-the-advantages-of-a-fibre-optic-network-infrastructure

Equitel. (2021). *MyMoney*. https://equitel.com/my-money/

Er, B., & Mutlu, M. (2017). Financial Inclusion and Islamic Finance: A Survey of Islamic Financial Literacy Index. *International Journal of Islamic Economics and Finance Studies*, *3*(2), 33–54. https://doi.org/10.25272/j.2149-8407.2017.3.2.02

EY. (2020). *Nigeria Fintech Consensus 2020*. https://assets.ey.com/content/dam/ey-sites/ey-com/en_ng/ey-fintech-nigeria-census-final.pdf

Fanusie, Y. (2021, January 1). Stop Saying You Want To Bank The Unbanked. *Forbes*. https://www.forbes.com/sites/yayafanusie/2021/01/01/stop-saying-you-want-to-bank-the-unbanked/?sh=13a0312f456a

Finau, G., Curuki, J., & McGoon, J. (2016). Perceptions of Digital Financial Services in Rural Fiji. *Information Technologies and International Development*, *12*(4), 11–21. https://www.researchgate.net/publication/312088057

FINCA. (2021). *Financial Inclusion*. https://finca.org/our-impact/improved-lives/financial-inclusion/

FNB. (2021). *Official Website*. https://www.fnb.co.za/send-money/eWalletExtra.html

Frost & Sullivan. (2018). *Digital Market Overview: Nigeria*.

Gabor, D., & Brooks, S. (2017). The digital revolution in financial inclusion: international development in the fintech era. *New Political Economy*, *22*(4), 423–436. https://doi.org/10.1080/13563467.2017.1259298

Gates, B. (2015, January 15). 2015 Annual Letter - A big bet for 2030 . *Gates Notes - The Blog of Bill Gates*. https://www.gatesnotes.com/2015-annual-letter

Gausemeier, J., Fink, A., & Schlake, O. (1998). Scenario Management: An Approach to Develop Future Potentials. *Technological Forecasting and Social Change*, *59*(2), 111–130. https://doi.org/10.1016/S0040-1625(97)00166-2

Gimpel, H., Rau, D., & Röglinger, M. (2018). Understanding FinTech start-ups – a taxonomy of consumer-oriented service offerings. *Electronic Markets*, *28*(3), 245–264. https://doi.org/10.1007/s12525-017-0275-0

Gomber, P., Koch, J. A., & Siering, M. (2017). Digital Finance and FinTech: current research and future research directions. *Journal of Business Economics*, *87*(5), 537–580. https://doi.org/10.1007/s11573-017-0852-x

Goodwin, P., & Wright, G. (2001). Enhancing strategy evaluation in scenario planning: A role for decision analysis. *Journal of Management Studies*, *38*(1), 1–16. https://doi.org/10.1111/1467-6486.00225

Grossmann, I. (2007). Critical and strategic factors for scenario development and discontinuity tracing. *Futures*, *39*(7), 878–894. https://doi.org/10.1016/j.futures.2006.12.010

GSMA. (2017). *Mobile for Development Utilities: Lessons from the use of mobile in utility pay-as-you-go models*. www.gsma.com

GSMA. (2019). *State of the Mobile Money Industry in Sub-Saharan Africa: 2018*.

GSMA. (2020). State of the Industry Report on Mobile Money 2019. In *GSMA*. http://www.gsma.com/mobilefordevelopment/wp-content/uploads/2017/03/GSMA_State-of-the-Industry-Report-on-Mobile-Money_2016.pdf

GSMA. (2021a). *Mobile Money Metrics: Regulatory Index*. https://www.gsma.com/mobilemoneymetrics/#regulatory-index

GSMA. (2021b). *State of the Industry Report on Mobile Money 2021*.

Gulamhuseinwala, I., Bull, T., & Lewis, S. (2015). FinTech is gaining traction and young, high-income users are the early adopters. *The Journal of Financial Perspectives: FinTech*, *3*(3), 1–17.

Haddad, C., & Hornuf, L. (2019). The emergence of the global fintech market: economic and technological determinants. *Small Business Economics*, *53*(1), 81–105. https://doi.org/10.1007/s11187-018-9991-x

Häder, M., & Häder, S. (2000). *Die Delphi-Technik in den Sozialwissenschaften: Methodische Forschungen und innovative Anwendungen*. Westdeutscher Verlag.

Hanouch, M. (2015, February 17). What is USSD & Why Does it Matter for Mobile Financial Services? *CGAP*. What is USSD & Why Does it Matter for Mobile Financial Services?

IFC. (2017). *Green Finance: A Bottom-up Approach to Track Existing Flows*. www.ifc.org

ITU. (2013a). *The Mobile Money Revolution - Financial Inclusion Enabler*. https://www.itu.int/dms_pub/itu-t/oth/23/01/T23010000200002PDFE.pdf

ITU. (2013b). *The Mobile Money Revolution - NFC Mobile Payments*. https://www.itu.int/dms_pub/itu-t/oth/23/01/T23010000200001PDFE.pdf

Ivo, S. (2021, June 16). Nigeria Mobile Money Market Size, Share, Trends, Analysis and Forecast Report 2021-2026. *The Manomet Current* . https://manometcurrent.com/nigeria-mobile-money-market-size-share-trends-analysis-and-forecast-report-2021-2026/

Jensen, D. (2008). Transferability. In L. M. Given (Ed.), *The SAGE Encyclopedia of Qualitative Research Methods* (pp. 886–887). SAGE Publications.

Johnson, P., & Clark, M. (2006). Mapping the terrain: An overview of business and management research methodologies. In P. Johnson & M. Clark (Eds.), *Business and Management Research Methodologies* (1st ed., pp. iv–xxv). SAGE Publications.

Jouti, A. T. (2018). Islamic finance: financial inclusion or migration? *ISRA International Journal of Islamic Finance*, *10*(2), 277–288. https://doi.org/10.1108/IJIF-07-2018-0074

Kahn, H. (1967). *Thinking about the Unthinkable*. Horizon Press.

Kameoka, A., Yokoo, Y., & Kuwahara, T. (2004). A challenge of integrating technology foresight and assessment in industrial strategy development and policymaking. *Technological Forecasting and Social Change*, *71*(6), 579–598. https://doi.org/10.1016/S0040-1625(02)00397-9

Kang, D., Jang, W., Lee, H., & No, H. (2013). A Review on Technology Forecasting Methods and Their Application Area. *International Journal of Industrial and Manufacturing Engineering*, *7*(4), 591–595.

Karlan, D., Kendall, J., Mann, R., Pande, R., Suri, T., & Zinman, J. (2016). *Research and Impacts of Digital Financial Services* (No. 22633; NBER Working Paper Series). http://www.nber.org/papers/w22633

Kelemen, M., & Rumens, N. (2008). *An Introduction to Critical Management Research* (1st ed.). SAGE Publications. https://doi.org/10.4135/9780857024336

Kene-Okafor, T. (2021). *African fintech OPay is reportedly raising $400M at over $1.5B valuation*. Techcrunch. https://techcrunch.com/2021/05/26/african-fintech-opay-reportedly-raising-400m-at-a-1-5b-valuation/?guccounter=1&guce_referrer=aHR0cHM6Ly93d3cuZ29vZ2xlLmNvbS8&guce_referrer_sig=AQAAAHK5nBAKenZXlq3jnGP9AVB8jiL4HAL_ilq_TiTY18nfWg4BCHVaD9VRS7dG_e32wYdwYWEXG0

Kilara, T., & Rhyne, E. (2014). *Customer-Centricity for financial inclusion*. https://www.cgap.org/sites/default/files/Brief-Customer-Centricity-for-Financial-Inclusion-Jun-2014.pdf

Kilduff, M., & Mehra, A. (1997). Postmodernism and Organisational Research. *The Academy of Management Review*, *22*(2), 453–481.

Kim, Y., Choi, J., Park, Y.-J., & Yeon, J. (2016). The adoption of mobile payment services for "fintech." *International Journal of Applied Engineering Research*, *11*(2), 1058–1061.

Klapper, L., Lusardi, A., & van Oudheusden, P. (2015). Financial Literacy Around the World: Insights from the Standard & Poor's Rating Services Global Financial Literacy Survey. *World Bank*. https://doi.org/10.1016/S0140-6736(01)68166-2

Klapper, L., & Singer, D. (2014). The Opportunities of Digitizing Payments. In *World Bank*. https://doi.org/10.4324/9781351042901-5

Kola-Oyeneyin, T., Kuyoro, M., & Olanrewaju, T. (2020). Harnessing Nigeria's fintech potential. In *McKinsey & Company*. https://www.mckinsey.com/featured-insights/middle-east-and-africa/harnessing-nigerias-fintech-potential

KPMG. (2021). *Total value of investments into fintech companies worldwide from 2010 to 2020 (in billion U.S. dollars)*. In Statista. https://www-statista-com.esc-web.lib.cbs.dk:8443/statistics/719385/investments-into-fintech-companies-globally/

Kuusi, O. (1999). *Expertise in the Future Use of Generic Technologies - Epistemic and Methodological Considerations Concerning Delphi Studies*.

Lauer, K., & Lyman, T. (2015). *Digital Financial Inclusion: Implications for Customers, Regulators, Supervisors, and Standard-Setting Bodies*. www.cgap.org/photos-videos/benefits-challenges-digital-financial-inclusion.

Lee, I., & Shin, Y. J. (2018). Fintech: Ecosystem, business models, investment decisions, and challenges. *Business Horizons*, *61*(1), 35–46. https://doi.org/10.1016/j.bushor.2017.09.003

Lee, S. (2015). Fintech and Korea's financial investment industry. *KCMI - Capital Market Opinion*.

Leibenstein, H. (1950). Bandwagon, Snob, and Veblen Effects in the Theory of Consumers' Demand. *The Quarterly Journal of Economics*, *64*(2), 183–207.

Levchenko, A. A. (2007). Institutional quality and international trade. *Review of Economic Studies*, *74*(3), 791–819. https://doi.org/10.1111/j.1467-937X.2007.00435.x

Lindgren, M., & Bandhold, H. (2009). *Scenario Planning – The Link BETWEEN Future and Strategy*. Palgrave.

Linstone, H. A., & Turoff, M. (1975). *The Delphi Method: Techniques and Applications*. Addison-Wesley.

Lochy, J. (2020, April 5). Financial inclusion - A word with many meanings. *Finextra*. https://www.finextra.com/blogposting/18441/financial-inclusion---a-word-with-many-meanings

Lopez, M. (2019a). *Digital Credit for Mobile Money Providers*. www.gsma.com/mobilemoney

Lopez, M. (2019b). *Making the connection between mobile money and climate change*. GSMA.

MarketLine. (2021a). *MarketLine Industry Profile: Banks in Nigeria*.

MarketLine. (2021b). *Marketline Industry Profile: Wireless Telecommunication Services in Nigeria*.

McGinn, M. K. (2012). Credibility. In A. J. Mills, G. Durepos, & E. Wiebe (Eds.), *Encyclopedia of Case Study Research* (pp. 243–244). SAGE Publications.

Miles, M. B., & Huberman, A. M. (1994). *Qualitative Data Analysis: An Expanded Sourcebook* (2nd ed.). SAGE publications, Inc, Thousands Oaks.

Miller, P. (2012a). Objectivity. In L. M. Given (Ed.), *The SAGE Encyclopedia of Qualitative Research Methods* (p. 573). SAGE Publications.

Miller, P. (2012b). Reliability. In L. M. Given (Ed.), *The SAGE Handbook of Qualitative Research Methods* (p. 754). SAGE Publications.

Millett, S. M. (2003). The future of scenarios: challenges and opportunities. *Strategy & Leadership*, *31*(2), 16–24. https://doi.org/10.1108/02756660310494845

Mitchell, V. W. (1991). The delphi technique: an exposition and application. *Technology Analysis & Strategic Management*, *3*(4), 333–358.

MNSConsulting. (2017). *Mobile Money: An African Success Story*.

MTN. (2019). MTN Nigeria progresses on its Fintech strategy. *MTN*.

MTN. (2021). *MTN MoMo*. https://www.mtn.co.za/Pages/momo-mobile-money.aspx

Mullen, P. M. (2003). Delphi: Myths and reality. *Journal of Health Organization and Management*, *17*(1), 37–52. https://doi.org/10.1108/14777260310469319

Munshi, N. (2020, November 3). Nigeria mobile money revolution delayed by scarcity of licences. *Financial Times*. https://www.ft.com/content/d77f5fa9-9d3a-4faa-837f-679d3192a75d

Muthiora, B. (2015). *Enabling Mobile Money Policies in Kenya Fostering a Digital Financial Revolution*. https://www.itu.int/en/ITU-T/focusgroups/dfs/Documents/2015_MMU_Enabling-Mobile-Money-Policies-in-Kenya.pdf

Muthiora, B. (2020). *Mobile Money recommendations to central banks in response to COVID-19*. https://www.gsma.com/mobilefordevelopment/wp-content/uploads/2020/04/Mobile-money-recommendations-to-central-banks-in-response-to-COVID-19.pdf

Narain, A., Leckow, R., Haksar, V., & Garcia Mora, A. (2018). *The Bali Fintech Agenda*. http://www.imf.org/external/pp/ppindex.aspx

Nartey, L. J., & David-West, O. (2015). *Mobile Money utility and financial inclusion: insights from unbanked poor end-users*. https://www.imtfi.uci.edu/files/docs/2016/IMTFI%20Report_Nartey_David-West.pdf

Navarro, P. (2009). Recession-proofing your organization. *MIT Sloan Management Review*, *50*(3), 45–51.

NBS. (2020). *2019 Poverty and Inequality in Nigeria*.

NCC. (2021). *Industry Statistics: Subcriber Data by Operator*. Nigerian Communications Commission. https://www.ncc.gov.ng/statistics-reports/industry-overview#gsm

Nigeria Inter-Bank Settlement System PLC. (2020). *Nigeria Inter-Bank Settlement System PLC.* In Statista.

Nowack, M., Endrikat, J., & Guenther, E. (2011). Review of Delphi-based scenario studies: Quality and design considerations. *Technological Forecasting and Social Change*, *78*(9), 1603–1615. https://doi.org/10.1016/j.techfore.2011.03.006

Odo, C. O. (2017, May 16). Wealth of five richest men in Nigeria could end extreme poverty in coutry yet 5 million face hunger. *Oxfam International* . https://www.oxfam.org/fr/node/10536

Okoli, C., & Pawlowski, S. D. (2004). The Delphi method as a research tool: An example, design considerations and applications. *Information and Management*, *42*(1), 15–29. https://doi.org/10.1016/j.im.2003.11.002

Olurounbi, R. (2021, March 15). Nigeria Unemployment Rate rises to 33%, Secong highest on global list. *Bloomberg*. https://www.bloomberg.com/news/articles/2021-03-15/nigeria-unemployment-rate-rises-to-second-highest-on-global-list

Onu, E. (2021a, April 20). *Late to Fintech Boom, Nigerian Banks Turn to Regulators for Help*. Bloomberg.

Onu, E. (2021b, June 11). Nigerian Payments App Paga May Be Africa's Next Unicorn. *Bloomberg*. https://www.bloomberg.com/news/articles/2021-06-11/unicorn-in-waiting-backed-by-draper-maps-transatlantic-expansion

OPay. (2021). *OPay Website: Company - About Us* . OPay.

Osafo-Kwaako, P., Singer, M., White, O., & Zouaoui, Y. (2018). Mobile money in emerging markets: The business case for financial inclusion. *McKinsey & Company*.

Osibogun, D. (2020). *Bridging Financial Literacy Gap in Nigeria*. https://www.thisdaylive.com/index.php/2020/03/13/bridging-financial-literacy-gap-in-nigeria/

Oxelheim, L., & Wihlborg, C. (2008). *Corporate Decision Making with Macroeconomic Uncertainty: Performance and Risk Management*. Oxford University Press.

Oxfam. (2021). *Nigeria: extreme inequality in numbers*. Oxfam International. https://www.oxfam.org/en/nigeria-extreme-inequality-numbers

Oxford English Dictionary. (n.d.). *Oxford English Dictionary: Definition of fintech*. https://www.lexico.com/definition/fintech

Paga. (2021). *Official Website*. https://www.mypaga.com

Päivärinta, T., Pekkola, S., & Moe Erik, C. (2011). Grounding theory from Delphi studies. *International Conference on Information Systems 2011, ICIS 2011*.

Parada, M., & Bull, G. (2014). *In the Fast Lane: Innovations in Digital Finance*.

Partech. (2020). *2020 Africa Tech Venture Capital Report*. 1–28. https://cdn-website.partechpartners.com/media/documents/2021-02_Partech_Africa-2020_Africa_Tech_VC_Report_1.pdf

Patton, M. Q. (1987). *How to use qualitative methods in evaluation* (1st ed.). SAGE Publications.

Pazarbasioglu, C., Mora, A. G., Uttamchandani, M., Natarajan, H., Feyen, E., & Saal, M. (2020). *Digital Financial Services*.

Pedrosa, J., & Do, Q. T. (2011). Geographic Distance and Credit Market Access in Niger. *African Development Review*, *23*(3), 289–299. https://doi.org/10.1111/j.1467-8268.2011.00287.x

Persianas. (2021). *Overview Nigeria*. Persianas. http://www.persianasgroup.com/the-market/overview-of-nigeria/

Porter, M. E. (1979). How competitive forces shape strategy. *Harvard Business Review*, *57*(2), 137–145.

Postma, T. J. B. M., Alers, J. C., Terpstra, S., & Zuurbier, A. (2007). Medical technology decisions in The Netherlands: How to solve the dilemma of technology foresight versus market research? *Technological Forecasting and Social Change*, *74*(9), 1823–1833. https://doi.org/10.1016/j.techfore.2007.05.011

Powell, C. (2003). The Delphi technique: myths and realities. *Journal of Advanced Nursing*, *41*(4), 376–382.

Prahalad, C. K., & Hamel, G. (1990). The Core Competence of the Corporation. *Harvard Business Review*, *68*, 79–91. https://doi.org/10.1016/b978-0-7506-7223-8.50003-4

Rana, N. P., Luthra, S., & Rao, H. R. (2020). Key challenges to digital financial services in emerging economies: the Indian context. *Information Technology and People*, *33*(1), 198–229. https://doi.org/10.1108/ITP-05-2018-0243

Reed, M. (2005). Reflections on the "realist turn" in organization and management studies. *Journal of Management Studies*, *42*(8), 1621–1644.

Reuters. (2019, April 3). M-Pesa helps drive up Kenyan's access to financial services - study. *Reuters*.

Rikkonen, P. (2005). Utilisation of alternative scenario approaches in defining the policy agenda for future agriculture in Finland. In *Turku School of Economics and Business Adminstration*.

Rikkonen, P., & Tapio, P. (2009). Future prospects of alternative agro-based bioenergy use in Finland-Constructing scenarios with quantitative and qualitative Delphi data. *Technological Forecasting and Social Change*, *76*(7), 978–990. https://doi.org/10.1016/j.techfore.2008.12.001

Rojas-Suarez, L. (2010). Access to Financial Services in Emerging Powers: Facts, Obstacles and Policy Implications. *Background Paper for the Perspectives on Global Development 2010 Shifting Wealth, OECD Development Centre*. https://doi.org/10.2139/ssrn.2559807

Roney, C. W. (2010). Intersections of strategic planning and futures studies: Methodological complementarities. *Journal of Futures Studies*, *15*(2), 71–100.

Rowe, G., & Wright, G. (1991). The Delphi Technique: a Re-Evaluation of Research and Theory. *Technological Forecasting and Social Change*, *39*, 235–251.

Saal, M., Starnes, S., & Rehermann, T. (2017). *Digital Financial Services: Challenges and Opportunities for Emerging Market Banks*. https://openknowledge.worldbank.org/handle/10986/30368?locale-attribute=es

Safaricom. (2021). *M-Pesa*. https://www.safaricom.co.ke/m-pesa

Sarma, M., & Pais, J. (2008). Financial Inclusion and Development: A Cross Country Analysis. *In Annual Conference of the Human Development and Capability Association, New Delhi*, *168*(10–13), 1–30. https://doi.org/10.1002/jid

Sassi, S., & Goaied, M. (2013). Financial development, ICT diffusion and economic growth: Lessons from MENA region. *Telecommunications Policy*, *37*(4–5), 252–261. https://doi.org/10.1016/j.telpol.2012.12.004

Saunders, M., Lewis, P., & Thornhill, A. (2016). *Research Methods for Business Students* (7th ed.). Pearson Education Limited.

Schnaars, S. P. (1987). How to develop and use scenarios. *Long Range Planning*, *20*(4), 125. https://doi.org/10.1016/0024-6301(87)90172-5

Schoemaker, P. J. H. (1991). When and how to use scenario planning: A heuristic approach with illustration. *Journal of Forecasting*, *10*(6), 549–564. https://doi.org/10.1002/for.3980100602

Schoemaker, P. J. H. (1993). Conceptual and Behavioral Foundation. *Strategic Management Journal*, *14*(November 1992), 193–213.

Schoemaker, P. J. H. (1995). *Scenario planning: A tool for strategic thinking*. *36*, 25–40.

Schueffel, P. (2016). Taming the Beast: A Scientific Definition of Fintech. *Journal of Innovation Management*, *4*(4), 32–54. https://doi.org/10.24840/2183-0606_004.004_0004

Sharma, A., & Kukreja, S. (2013). An Analytical Study:Relevance of Financial Inclusion For Developing Nations. *Research Inventy: International Journal Of Engineering And Science*, *2*(6), 15–20.

Soha, S. (2014, June 8). Does financial inclusion need to be more customer-centric? *Center of Financial Inclusion*. https://www.centerforfinancialinclusion.org/does-financial-inclusion-need-to-be-more-customer-centric

Statista. (2018). *Distribution of unbanked population from 2011 to 2017, by region*. https://www.statista.com/statistics/553180/distribution-of-unbanked-population-by-region/

Statista. (2020). *Number of mobile money agents enrolled in Nigeria from 2016 to 2019*. Statista. https://www-statista-com.esc-web.lib.cbs.dk:8443/statistics/1182039/number-of-mobile-money-agents-in-nigeria/

Statista. (2021a). *Alternative Lending*. Digital Market Outlook. https://www-statista-com.esc-web.lib.cbs.dk:8443/outlook/dmo/fintech/alternative-lending/worldwide

Statista. (2021b). *Digital Payments*. Digital Market Outlook. https://www-statista-com.esc-web.lib.cbs.dk:8443/outlook/dmo/fintech/digital-payments/worldwide

Statista. (2021c). *Digital Remittances*. Digital Market Outlook. https://www-statista-com.esc-web.lib.cbs.dk:8443/outlook/dmo/fintech/personal-finance/digital-remittances/worldwide

Stewart, C. C. (2008). Integral scenarios: Reframing theory, building from practice. *Futures*, *40*(2), 160–172. https://doi.org/10.1016/j.futures.2007.11.013

Strauss, A., & Corbin, J. (1998). *Basics of Qualitative Research* (2nd ed.). SAGE Publications.

Suddaby, R. (2006). What Grounded Theory is not. *Academy of Management Journal*, *49*(4), 633–643.

Suri, T., & Jack, W. (2016). The long-run poverty and gender impacts of mobile money. *Science* , *354*(6317), 1288–1292. http://science.sciencemag.org/

Thales. (2021). Nigerian national ID program: an ambitious initiative. *The Thales Group*. https://www.thalesgroup.com/en/markets/digital-identity-and-security/government/customer-cases/nigeria-eid

The Economist. (2020). *State of play: Fintech in Nigeria*.

The Global Economy. (2020). *Nigeria: Political Stability*. https://www.theglobaleconomy.com/nigeria/wb_political_stability/

The Guardian. (2021, April 1). The growth of smartphone usage in Nigeria. *The Guardian*. https://guardian.ng/technology/the-growth-of-smartphone-usage-in-nigeria/

The World Bank. (2020a). *GDP per capita (current US$) - Nigeria*.

The World Bank. (2020b). *Population ages 0-14 (% of total population) - Nigeria*. The World Bank. https://data.worldbank.org/indicator/SP.POP.0014.TO.ZS?locations=NG

The World Bank. (2021). *Financial Inclusion*. https://www.worldbank.org/en/topic/financialinclusion/overview

Thomas, K. W., & Tymon, W. G. (1982). Necessary Properties of Relevant Research: Lessons from Recent Criticisms of the Organisational Sciences. *Academy of Management Review*, *7*(3), 345–352.

Triodos. (2021). *Creating an inclusivie world - How investing in financial inclusion made a difference in 2020*. https://www.triodos-im.com/impact-report/2020/financial-inclusion

Turoff, M. (1970). The design of a policy Delphi. *Technological Forecasting and Social Change*, *2*(2), 149–171.

Ugwuja, V. C., & Dickson, P. M. (2020). Leveraging on Mobile Money Business Models for Digital Financial Inclusion of Small Holder Households in Nigeria. *World Journal of Innovative Research*, *8*(4). https://doi.org/10.31871/wjir.8.4.43

Unnikrishnan, S., Larson, J., Pinpradab, B., & Brown, R. (2019). *How Mobile Money Agents Can Expand Financial Inclusion*. https://www.bcg.com/publications/2019/how-mobile-money-agents-can-expand-financial-inclusion

UNSGSA. (2021). *Financial Inclusion*. https://www.unsgsa.org/financial-inclusion

van der Heijden, K. (1996). *The Art of Strategic Conversation* (1st ed.). John Wiley & Sons. http://library1.nida.ac.th/termpaper6/sd/2554/19755.pdf

van der Heijden, K. (2004). *The Art of Strategic Conversation* (2nd ed.). John Wiley & Sons.

Varum, C. A., & Melo, C. (2010). Directions in scenario planning literature - A review of the past decades. *Futures*, *42*(4), 355–369. https://doi.org/10.1016/j.futures.2009.11.021

Vecchiato, R., & Roveda, C. (2010). Strategic foresight in corporate organizations: Handling the effect and response uncertainty of technology and social drivers of change. *Technological Forecasting and Social Change*, *77*(9), 1527–1539. https://doi.org/10.1016/j.techfore.2009.12.003

Von Der Gracht, H. A., & Darkow, I. L. (2010). Scenarios for the logistics services industry: A Delphi-based analysis for 2025. *International Journal of Production Economics*, *127*(1), 46–59. https://doi.org/10.1016/j.ijpe.2010.04.013

Voorhies, R., Lamb, J., & Oxman, M. (2013). Fighting Poverty, Profitably: Transforming the Economics of Payments to Build Sustainable, Inclusive Financial Systems. *Bill & Melinda Gates Foundation*, *September*.

Wilson, R. M. S., & Gilligan, C. (2005). *Strategic Marketing Management: Planning, Implementation & Control* (3rd ed.). Elsevier Butterworth-Heinemann.

World Bank. (2012). *Information and Communications for Development: Maximizing Mobile*. https://openknowledge.worldbank.org/handle/10986/11958

World Bank. (2021a). *GDP (current US$) - Sub-Saharan Africa (2020)*. Worldbank.

World Bank. (2021b). *Population, total - Nigeria (2020)*. World Bank. https://data.worldbank.org/indicator/SP.POP.TOTL?locations=NG

World Bank. (2021c). *Population, total - Sub-Saharan Africa (2020)*.

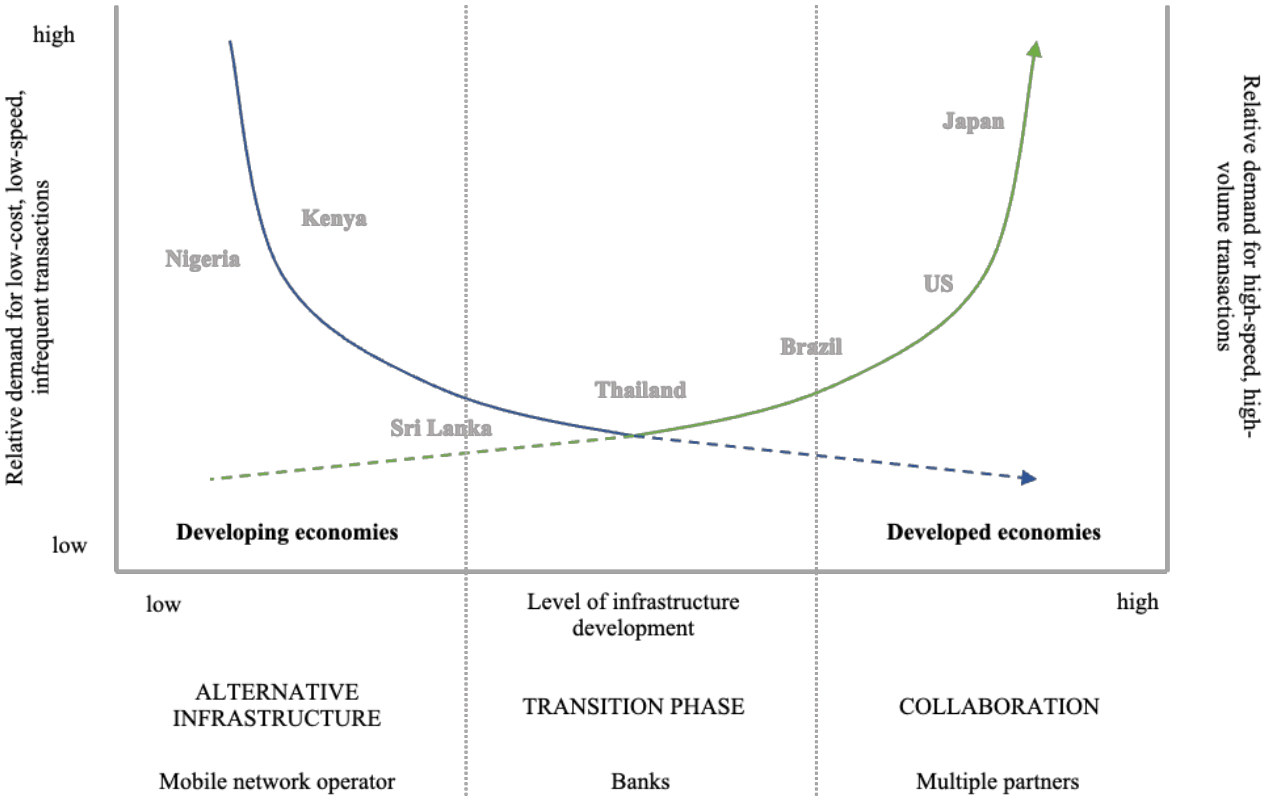
WorldRemit. (2021). *All About Mobile Money*. https://www.worldremit.com/en/mobile-money

Woudenberg, F. (1991). An evaluation of Delphi. *Technological Forecasting and Social Change*, *40*(2), 131–150.

Yin, R. K. (2014). *Case Study Research: Design and Method* (4th ed.). SAGE Publications

Appendices

Appendix 1: Mobile Money Demand Curves



Source: World Bank, 2012

Appendix 2: Delphi Round 1 Questionnaire Format

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CEMS

Delphi-Based Scenario Analysis Study – Round 1

Topic: "The Future of the Nigerian Mobile Money Market"

We thank you again for participating in our study and are looking forward to your professional insights. We ask you to fill in and send back the questionnaire within **two weeks** until **Friday, 07.05.2021**. In case you need additional time, please let us know.

This survey is divided into two parts and serves as the first of two rounds in our Delphi study. The aim is to explore different aspects of the Nigerian mobile money sector covering both the macro, i.e., country-level (part 1) and the meso, i.e., industry level (part 2).

The questions are purposely open-ended and broadly formulated as the study serves **an idea-generating function** within our scenario-building process. In case you are interested, you will find more information on the overall study process in the document enclosed.

Please feel free to choose the level of detail in your answers depending on your individual expertise and knowledge of the different aspects. However, we would like you to focus on high-level issues of **strategic relevance**.

Once we have received responses from all participants, we will collate and summarize the findings and formulate a brief second questionnaire for round 2. You will receive this by the end of May 2021.

Your participation in the survey and your individual responses are strictly confidential to the research team and will only be shared with survey participants and outsiders in aggregated and anonymized form in the second round of the survey.

1

Please provide your information below, which will be used only for participant identification for us in round 2 of the survey.

First Name: *Please insert*
Last Name: *Please insert*
Profession: *Please insert*
Organization: *Please insert*

Email Address: *Please insert*

If you have any questions, please contact us via email: anso19ai@student.cbs.dk or duok19ab@student.cbs.dk.

Thanks again for your participation!

Kind regards,
Anna-Sophie Somo Watong
Dustin Okwuagwu

2

Part 1: Nigerian Macro-Environment (macro-level)

The first part of the survey refers to the Nigerian macro-environment (country level). The ***PESTEL model*** with the dimensions ***political***, ***economic***, ***societal***, ***technological***, ***environmental*** and ***legal*** provides a clear structure.

For each dimension, you are asked to name up to three "driving forces" you consider most important and briefly justify your selection.

We understand **driving forces** as central factors that through causal links drive the evolution and create the future of the industry.

Examples:

P: Political (in)stability, US-China trade relations
E: Economic growth (GDP)
S: Population growth, age distribution
T: Mobile phone penetration, technological shifts (digital)
E: Growing awareness of impact of climate change
L: Regulations

Due to the long time horizon of 10-15 years, we encourage you to include drivers that are more certain, but also those with higher uncertainty and unpredictability.

3

Questions – Part 1:

1. Political

In the Nigerian political environment, what are the three most important drivers that will affect the Mobile Money industry in Nigeria in the long run (in 2030-2035) and why?

Example: Institutional developments

Answer:

4

2. Economic

What are the three major economic trends in Nigeria that will impact the domestic Mobile Money industry in the long term (in 2030-2035) and why?

Example: Implications of growing middle class

Answer:

5

3. Societal (incl. demographic trends)

In Nigerian society, what are the three main driving forces that will affect the Mobile Money industry in Nigeria in the long term (in 2030-2035) and why?

Example: Implication of increasingly younger population

Answer:

6

4. Technological

What three technological trends will impact the Mobile Money industry in Nigeria in the long term (in 2030-2035) and why?

Examples: Implication from shift towards digital transactions or future mobile payments

Answer:

7

5. Environmental

Name (if applicable) up to three major environmental trends in Nigeria that will impact the Nigerian Mobile Money industry in the long term (in 2030-2035) and why?

Examples: Increased SDG focus or growing importance of Green Financial Inclusion (https://www.gsma.com/mobilefordevelopment/programme/digital-utilities/making-the-connection-between-mobile-money-and-climate-change/)

Answer:

8

6. Legal

What are the top three law developments in Nigeria that will impact the Nigerian Mobile Money industry in the long term (in 2030-2035) and why?

Example: Implications of Nigerian Central Bank allowing non-financial companies (e.g., MTN and Airtel) to possess mobile banking licences

Answer:

9

Part 2: Mobile Money Industry in Nigeria (meso-level)

The second part of the survey refers to the Nigerian Mobile Money industry's meso-environment (industry level). Here, mainly industrial internal drivers and dynamics will be covered.

7. Market Challenges and Opportunities

What are the top three market challenges and opportunities that fintechs operating in the Nigerian mobile money industry will have to face in the long-term (in 2030 – 2035) and why?

Example Challenges: Threat of substitutes and new entrants, competition
Example Opportunity: Market growth

Answer:

10

8. Customer preferences

What are the top three trends in customer preferences concerning banking and payment in the long-term (in 2020 – 2030) and how will they influence the product offering in the Nigerian Mobile Money Industry?

Example: Increased digital banking and digital payment, credit

Answer:

11

9. Industry players and their interplay

Which role will fintechs play in the Nigerian mobile money industry in the long-term (in 2030 – 2035) compared to other industry players (e.g., banks, MNOs, etc.)? If applicable, how will they interact with these industry players?

Example: Ecosystems and partnerships

Answer:

12

Part 3: Additional Comments

10. Comments

Do you have any additional topics that you would like to mention, and which have not been covered before?

Answer:

13

Appendix 3: Delphi Round 2 Questionnaire (in Qualtrics)

Dear participant,

we greatly appreciate your participation in the second and final round of our study.

After receiving your answers in round 1, we have analyzed them and summarized them into a short list of most mentioned drivers per category.

This time we ask you to comment on what other participants have stated, (dis)agree, defend your own position, add more information or come up with new ideas. The goal is to find a consensus among the participating experts to then identify the key drivers that shape the future of the mobile money industry in Nigeria.

We kindly ask you to complete and return the questionnaire **within two weeks until Monday, 05/07/2021.**

This part of the study is going to be faster than the first round. It should not take you more than **10-15 minutes** to complete the questionnaire. As the end of our thesis is approaching, we would be very grateful about meeting the deadline.

If you have any questions, please contact us by email: anso19ai@student.cbs.dk or duok19ab@student.cbs.dk.

Thank you again for your participation!

Kind regards,

Anna-Sophie Somo Watong
Dustin Okwuagwu

→

1. Political:

Top 5 aggregated drivers raised by participants (ordered by degree of importance based on how many participants mentioned topics related to the driver)

1. Political will (in promoting financial inclusion policies)
2. Political instability
3. Institutional development
4. Regulations and policies
5. Infrastructure for mobile telephony

Do you agree with the ranking of the most important drivers? If not, why not and what would be your ranking?

2. Economic:

Top 5:

1. Poverty and income inequality
2. Employment level
3. Fintech investments
4. Middle class growth
5. Level of financial inclusion

Do you agree with the ranking of the most important drivers? If not, why not and what would be your ranking?

3. Societal (incl. demographic trends)

Top 5:

1. Growth of younger population
2. Growth of more digital savvy population
3. Robustness of governmental social investment programmes
4. Gender inclusion
5. Financial literacy

Do you agree with the ranking of the most important drivers? If not, why not and what would be your ranking?

4. Technological:

Top 5:

1. Level of digital awareness in society
2. Technological advancement
3. Smartphone penetration
4. Infrastructural development
5. Fintech expansion

Do you agree with the ranking of the most important drivers? If not, why not and what would be your ranking?

5. Environmental:

Top 5:

1. Green financing and payment
2. Natural disasters and diseases
3. Sustainable Banking Principles
4. Use of renewable energies
5. Depleting environmental infrastructural facilities

Do you agree with the ranking of the most important drivers? If not, why not and what would be your ranking?

6. Legal:

Top 5:

1. Government policies and regulations
2. Payment Services Bank Guidelines
3. Presence of regulatory sandbox
4. Consumer protection laws
5. Licensing non-financial institutions to operate in the mobile money industry

Do you agree with the ranking of the most important drivers? If not, why not and what would be your ranking?

← →

7. Market challenges:

Top 5:

1. (Geo-)political instability
2. Financial illiteracy
3. Exchange rate
4. New market players
5. Lack of compelling customer value proposition

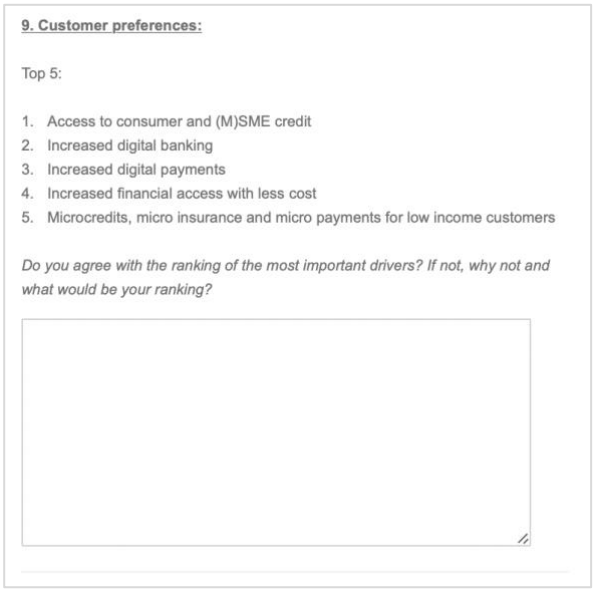
Do you agree with the ranking of the most important drivers? If not, why not and what would be your ranking?

8. Market opportunities:

Top 5:

1. Market growth
2. Market size
3. National identification advancements
4. Customer-centric product development
5. Cash displacement

Do you agree with the ranking of the most important drivers? If not, why not and what would be your ranking?



9. Customer preferences:

Top 5:

1. Access to consumer and (M)SME credit
2. Increased digital banking
3. Increased digital payments
4. Increased financial access with less cost
5. Microcredits, micro insurance and micro payments for low income customers

Do you agree with the ranking of the most important drivers? If not, why not and what would be your ranking?

Based on the participants' responses the order of the drivers changed in some cases. The final result is presented in the Data Analysis (Chapter 5.2.1)

Appendix 4: Case Interview Guide

1. ***View on the future of MM in Nigeria, before presenting the scenarios***

- What are the biggest threats and opportunities your company is facing in the next 10-15 years?
- What do you think is the role of fintechs in the future Nigerian MM industry in 10-15 years?

Presentation of Future Scenarios

2. ***Scenario Evaluation***

- Do you consider the scenarios to be realistic?
- Do you see any weaknesses?
- Do you consider the scenarios to be useful for your company?
- Have you incorporated any of these external drivers in your current strategies?
- How relevant is the threat of new entrants in your strategy?
- How relevant is customer-centric product development?
- Which of these scenarios would be the desired outcome?

3. ***Strategic Implications***

- Do you have strategies in place to react to the presented scenarios?
- What are the strategic implications for your company's decision making today (if any)?
- What are strategic implications for the fintech sector as a whole?

4. ***Strategic Forecasting***

- Do you regularly conduct strategic forecasting/planning/sensing efforts to understand the future external environment?

Appendix 5: Result of Initial and Focused Coding (EXAMPLE)

Socio-Cultural								
Code	**Description**	**Expert 1**	**Expert 2**	**Expert 3**	**Expert 4**	**Expert 5**	**Expert 6**	**Score**
Growth of younger population	Especially among the youth segments will lead to increasing mobile money adoption Especially amongst the young people will fuel the adoption of mobile money. With increasingly sophisticated mobile phone product offerings, fintech solutions, and mobile apps targeting and offering differing value propositions, we are set to begin to see more shifts towards mobile money solutions. We currently have a digitally literate young population and our population growth will continue to reinforce this trend as more young people reach adolescence and begin to adopt mobile phone trends through peer influence. Younger and more digital population Growing younger population that is more technology savvy. Growing younger population with high adoption rate	0	3	2	3	3	3	14
Growth of more digital savvy population	We currently have a digitally literate young population and our population growth will continue to reinforce this trend as more young people reach adolescence and begin to adopt mobile phone trends through peer influence. Digital workers, i.e. a youth population with higher digital capabilities are more likely to engage in location-based digital work as provided by platforms, while the more educated can also participate on freelance work platforms More technology savvy Explosive growth	0	0	2	2	3	3	10
Robustness of governmental social investment programmes	Digitizing Government-to-People Payment: Government's social investment programmes such as the government economic empowerment programme (GEEP) and the social safety net (conditional cash transfer) programme targeted at SMEs and the vulnerable groups have for long been disbursed using cash. Industry advocates argue that to eliminate leakages in government spending and to promote accountability, the need to develop waterproof social register is a first point of call to identifying the rightful beneficiaries of these social programmes. The second phase is to digitize these payments by opening accounts for beneficiaries. With increase in mobile phone ownership, and validation of sim cards through the national identity number (NIN), phone numbers can be the next set of bank accounts especially for many who are far from traditional bank branches. Robustness of government social investment programmes at federal, states and local government levels.	2	0	3	0	0	0	5
Gender Inclusion	Women remain more financially excluded when compared to men. This is further complicated by socio-economical factors that render women to be unproductive members in the formal economy. Evidence shows that women, mostly those in rural areas where broadband penetration is poor are more excluded than their urban counterparts and with mobile money awareness and adoption, the gender gap can be closed as these women can have access to savings, credits and micro insurance products using mobile money services delivered through non-feature phones that can be powered by 2G connectivity. Women's financial inclusion: SDG 5 and the inclusion of women needs to be taken into consideration. The CBN framework for advancing women's financial inclusion is such an in initiative that needs to be properly executed.	3	0	0	0	0	0	3
Financial literacy	Educated group of the population	0	2	1	0	0	0	3
Digital workers	A youth population with higher digital capabilities are more likely to engage in location-based digital work as provided by platforms, while the more educated can also participate on freelance work platforms	0	0	0	2	0	0	2
Globalization	Although not just a local phenomenon specific to Nigeria, would increasingly influence the adoption of mobile money in Nigeria. Remittances, for example, coming from the diaspora population, would provide a compelling value proposition to adopt mobile money platforms to enhance efficiency in money transfer.	0	0	0	0	2	0	2
Consumer protection	Practices that build trust and ensure complaints are addressed	0	0	1	1	0	0	2
Gainfully employed strata of the population and Insecurity		0	1	0	0	0	0	1
Urbanization and rural urban migration	More people from the rural areas are migrating to the urban areas in droves, in Nigeria. This trend has continued unabated for some time now as people mostly move in order to find greener pastures, as they say. As they arrive the urban places, they become integrated into the society and also acquire the nuances, attitudes and lifestyles of the urban society. So they add to the numbers of people who potentially would adopt mobile money for transactional purposes.	0	0	0	0	1	0	1

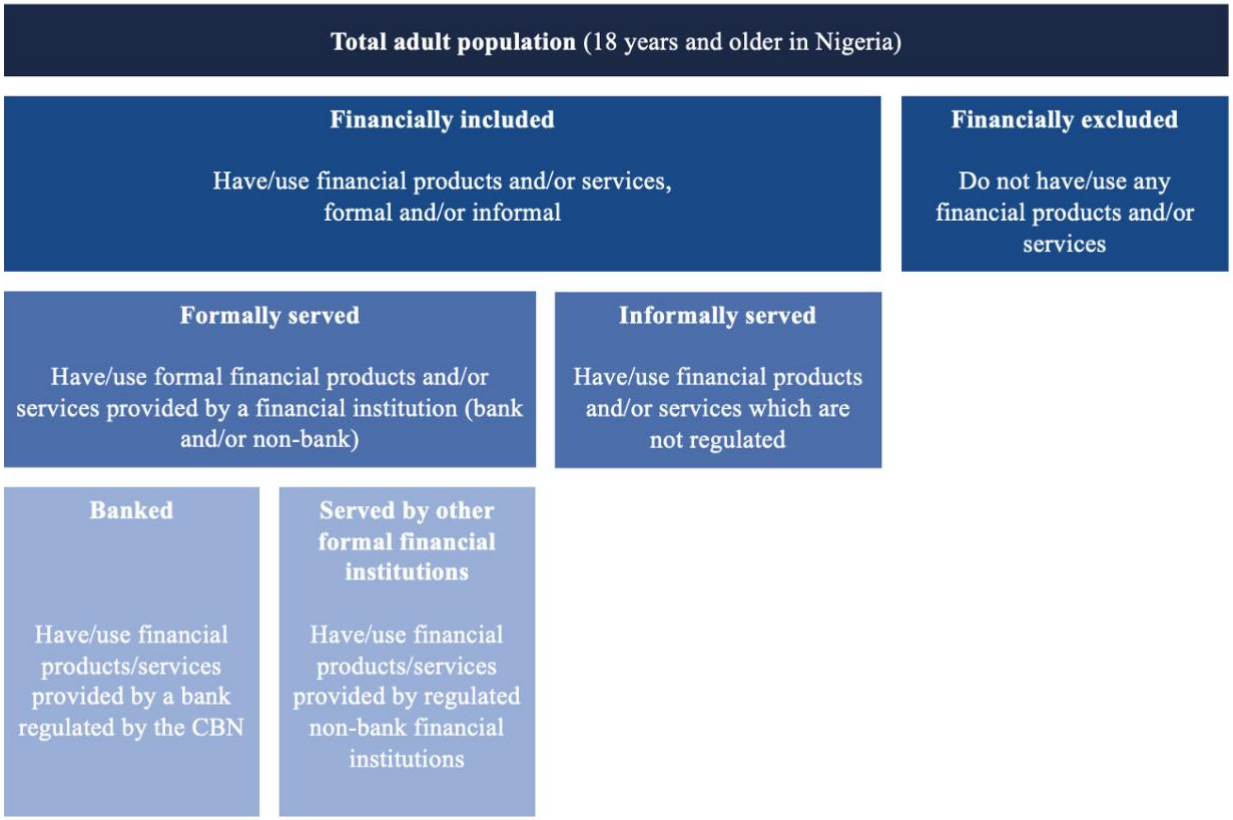
Key Driver

Score based on:

Rank given by participant in questionnair answer	Score
1	3
2	2
3	1

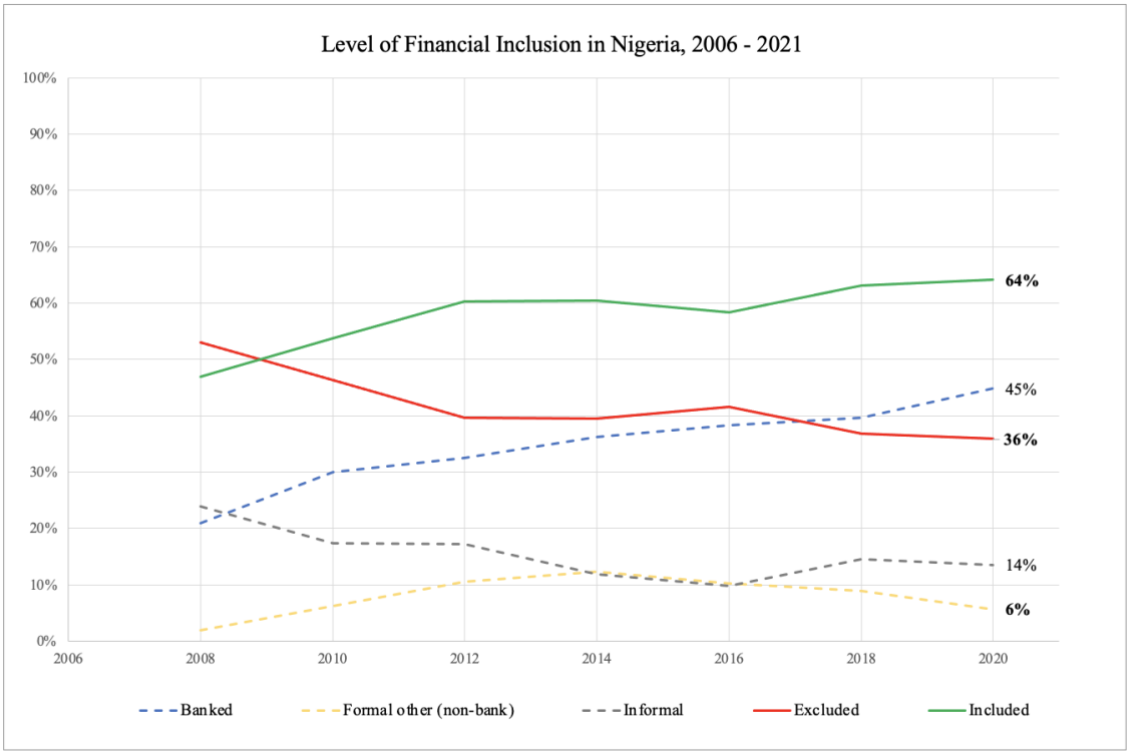
Upon reception of all questionnaire replies, answers of each participant were analyzed and categorized into different drivers (initial coding). After this, similar drivers that could be grouped under one overreaching driver were brough together in the above table. Each participant was asked to rank their answers by importance when filling out the questionnaire. Based on this ranking, each determined driver after was assigned a score based on participant's individual ranking. As a result, the drivers could be ordered by their importance and a short list of drivers resulted as the input for the second Delphi round (focused coding).

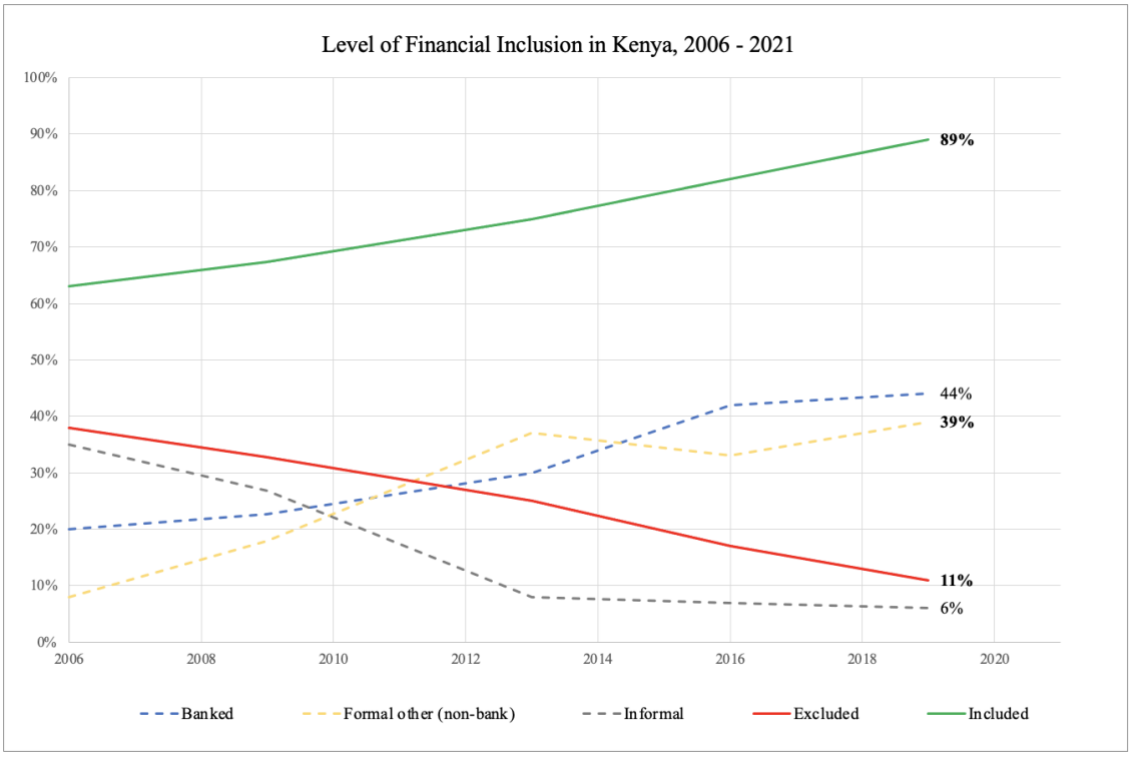
Appendix 6: Financial Inclusion – EFInA Definitions



Sources: EFInA 2020

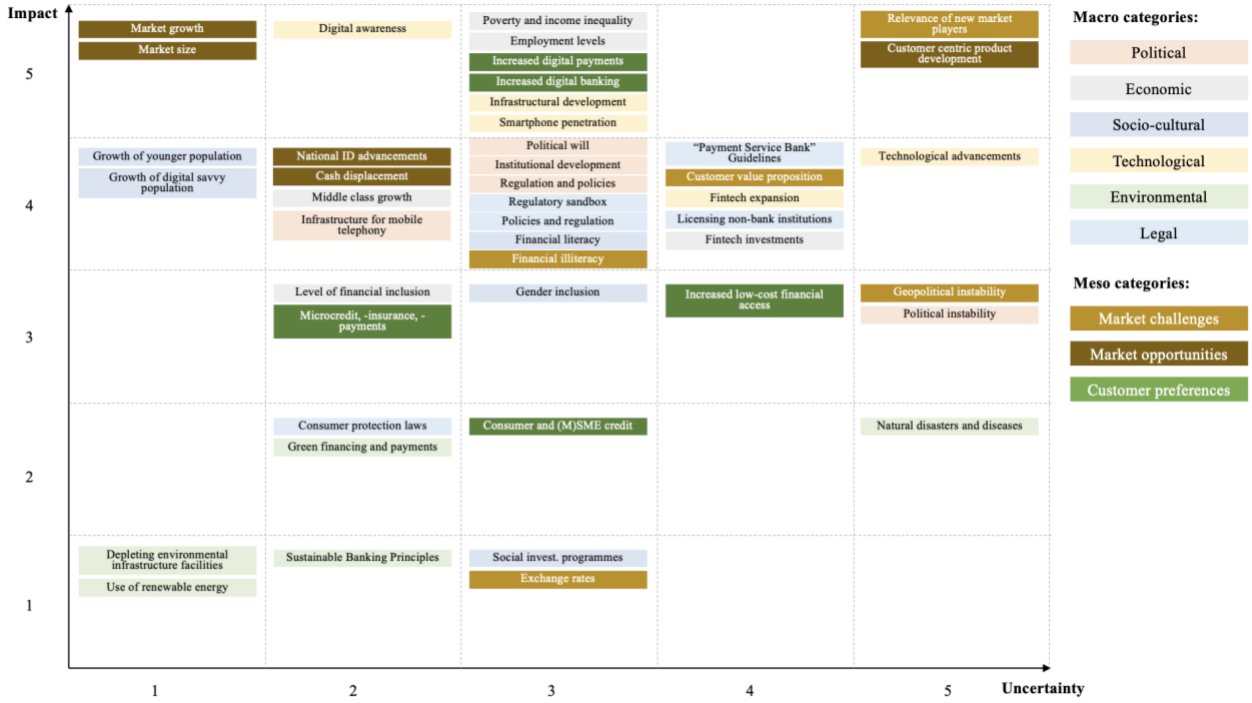
Appendix 7: Level of Financial Inclusion in Nigeria vs Kenya, 2006 - 2021





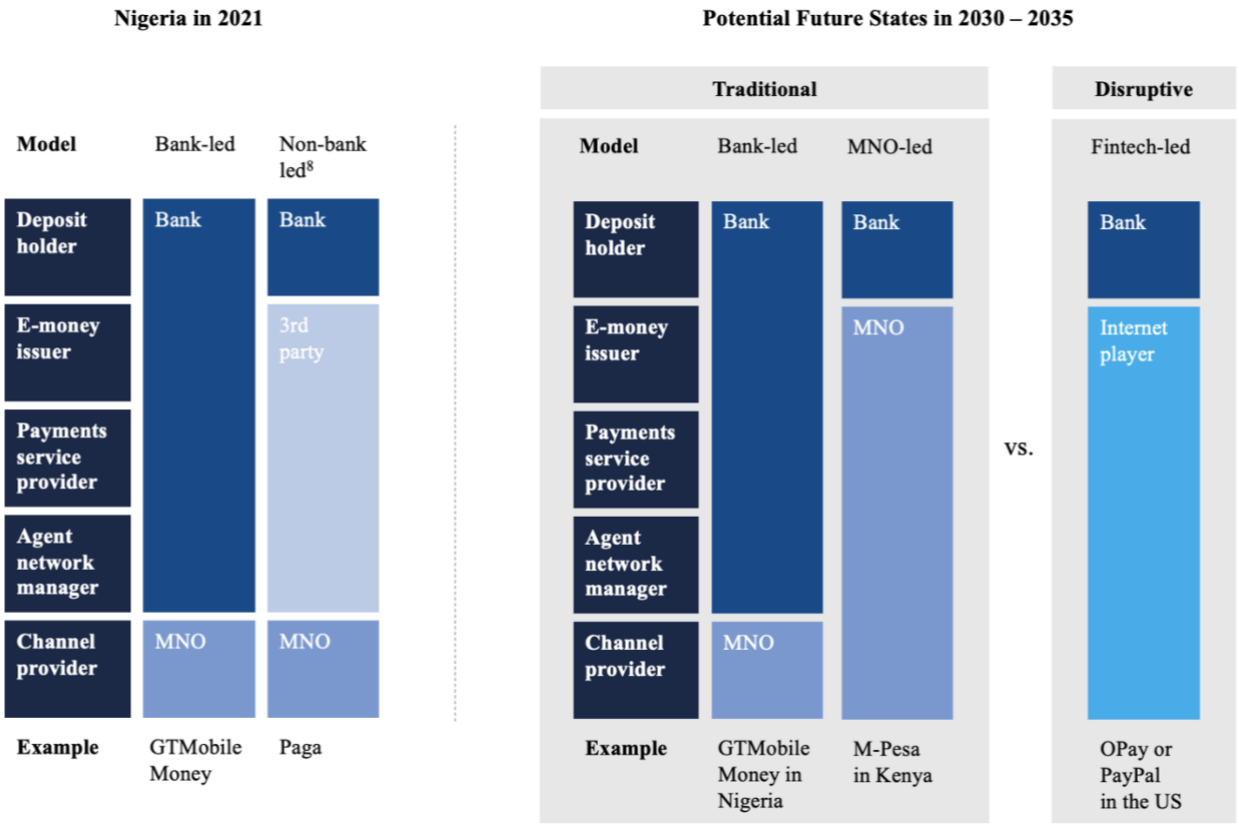
Sources: EFInA 2008, 2010, 2012, 2014, 2016, 2018, 2020

Appendix 8: Uncertainty Analysis Mix



Source: Own illustration

Appendix 9: Key Driver 1 – Dominant MM Value Chain Model



Source: Own illustration, adapted from (Bill & Melinda Gates Foundation, 2015; Osafo-Kwaako et al., 2018)

Appendix 10: Driving Forces – Long List

Political	Political will (in promoting financial inclusion policies)
	Political instability
	Institutional development
	Regulations and policies
	Infrastructure for mobile telephony
	Strong institutional commitment to implement digital economy road map
	Nigeria-China trade relations
	African free trade zone
	Synergy between government and other relevant stakeholders
	Policy coherence
	Insecurity
	Independent monetary policy
Economic	Poverty and income inequality
	Employment levels
	Fintech investments
	Middle class growth
	Level of financial inclusion
	Inflation
	Oil price
	Diversification of economy to agriculture and ICT
	Growth in Consumer Products (Ecommerce)
	Cash displacement
	Interest rate and insecurity
	FDI in ICT
	GDP growth

Socio-Cultural	Growth of younger population
	Growth of more digital savvy population
	Robustness of governmental social investment programs
	Gender Inclusion
	Financial literacy
	Digital workers
	Globalization
	Consumer protection
	Urbanization and rural urban migration
	Population Growth
Technological	Level of digital awareness in society
	Technological advancement
	Mobile penetration (smartphone, USSD, etc.)
	Infrastructural development
	Fintech expansion
	Cybersecurity
	Digital Financial Services
Environmental	Green financing and payment
	Natural disasters and diseases
	Sustainable Banking Principles
	Use of renewable energy
	Depleting environmental infrastructural facilities
	Last mile infrastructure

Legal	Government policies and regulations
	Payment Services Bank Guidelines
	Presence of regulatory sandbox
	Consumer protection laws
	Licensing non-financial institutions to operate in the MM industry
	Competition regulation
	Licensing of Mobile Money Agents
Market challenges	(Geo-)political instability
	Financial illiteracy
	Exchange rate
	New market players
	Lack of Compelling Customer Value Proposition
	Unfavorable digital divide
	Weak last mile distribution
	Security risk and network unreliability
	Stiff competition
	Increased innovation drive
	Large population in rural areas
	Low consumer trust in formal financial institutions
	Citizens' inability to fulfil KYC requirements

Market opportunities	Market growth
	Market size
	National identification advancements
	Customer-centric product development
	Cash displacement
	Build trust in the fintech ecosystem
	Population growth
Customer preferences	Increased access to consumer and (M)SME credit
	Increased digital banking
	Increased digital payments
	Increased financial access with less cost
	Microcredit, micro insurance and micro payments
	High Pricing Tariffs
	Availability and accessibility to variety of digital services
	Micro payments for bottom of pyramid customers
	Increased Quality of Service and Trust in Formal Financial Institutions
	Enhanced customer service proposition

Appendix 11: Interview Transcript Paga

Interviewee: Sherifah Balogun, Business Development Manager at Paga
Interviewers: Anna-Sophie Somo Watong, Dustin Okwuagwu

The interviewers welcomed the interviewee and verified whether the interview can be recorded as well as whether the interviewee's given name can be used. The interviewee also agreed that the authors may use the company's name when referring to strategic implications later in the data analysis and discussion.

The interviewers presented themselves briefly and asked the interviewee, Sharifah, to introduce herself and Paga.

Sharifah: Okay, so my name is Sherifah. I live and work in Lagos, Nigeria. I grew up in Lagos, Abuja and some other states. So I'm very much into Nigeria. I studied law, originally, practiced for about two years, and then I joined the bank - Sterling Bank. I was with them for about eight years. I worked across departments like access to finance, retail lending, retail business, business banking, customer experience, enterprise risk management, microbanking and financial inclusion, which was my most latest before I joined Paga as a manager for business development. Paga is a mobile money operator in Nigeria, licensed to carry services under the MMO license and also the microfinance license. We are very big into closing the gap for financial inclusion by enabling people to transfer money easily and most affordably, exposing billers, companies, onto platforms where customers can easily make payments for utility bills. And you know, the whole nine yards. Yeah, that'll be it for now.

Adds:
I am also very big in strategic partnerships that take these conversations forward for the benefit of the company and the customer.

Dustin: Perfect. Thanks a lot. A lot of valuable experiences.

The interviewers continue to give a quick overview of the master thesis and the setup of the scenario analysis

Dustin: So basically, before showing you this *[the scenarios]*, we just wanted to have or hear your unbiased opinion with these two questions. So basically, what, in your opinion, are the biggest threats and opportunities your company, so Paga, is facing in the next 10 to 15 years? And we could maybe begin with this and just elaborate on one or two threats and one or two opportunities.

Sharifah: OK, so 10 to 15 is a lot of time. I'm going to just focus on, say, the near future, saying about five to seven years, hopefully, you know. Up until, let's say, 2030. So. I also want to say that these threats and opportunities are not particularly peculiar to Paga. I might speak generally about the threats and opportunities that a typical MMO face in Nigeria.
The first one will be regulations. That's a very huge threat, and the second will be the inability to mine data.

For the regulations: I'm sure it is not hidden or known that we're really, really lagging behind with respect to catching up on our financial inclusion strategy that has been going on since 2011. And the major issue in Nigeria, the CBN in particular has decided not to have a better strategy that will work. In other countries, especially African countries, Kenya, Tanzania, Rwanda we have seen that a telco-led strategy is the best bet, because people will not sleep until they have a telephone where they can be accessible. With telephone penetration rates going as high as 81 percent, that's all the opportunity that we need to be able to do the right thing.

And regulations also have not been able to marry all of the stakeholders, the customers, the financial institutions, the companies, the agencies, to have a focus on where are we going. And I want to believe that the reason is because the right beneficiary of all of this has not been pinpointed. It has to be the customer. The customer has to be the person who is getting all of the benefits with respect to putting out the strategy together. You know, activating things and making things work. As long as we're not all aligned on that, that’s a big threat to the future of mobile money in Nigeria.

The data aspect of it is that you need to know your customer, right. What does your customer want? How do they want it? When they want it? What's important to them? I mean, for mobile money, we are bridging the gap of bringing services to the customers, you know, and if we're going to serve a customer, it means that there may not be a likelihood of this type of customer again in your whole bucket, which means that if you have 10 in the bucket, their needs and preferences are going to be as

diverse as for 10 to 20. So, I'm not going to have a blanket solution for this 10 in the bucket, except if I have been able to match exactly what they want. So, I boxed them in this for ease of delivery.

The data is really important. The customer that comes onto your app and goes out. Why? What was the reason for the bounce? How high are your bounce rates on the application? Have you been able to form a synergy between the touch points; the agent locations, the web portals? If you have bounce rates as high as, say, 25 percent and 60 percent is completely transactional and the other 10 or 15% is still just you don't know what is going on. That's slightly above 50 percent doing well. It means that you have the opportunity to be able to get to know these other customers and why they left.

For you to be able to mine this data you have to talk about putting in place the right technology, a system, where people can interpret this in order to be able to get that. And I hope everybody knows that this journey is really not something that's going to happen now. So, I was speaking with some people at one time and I was like, it's a life endeavor for us to say this is what we want to do. Because of the dynamism of the customer involved, it means that we're in this for life as long as we say we want to be in this business. And that means that everything there is to assist in making this better year in, year out, month in, month out. And data is really important. And I see that the inability to be able to get that known is very huge.

So, the opportunities aspect. I spoke about the opportunity of regulations doing the right thing, to be able to get captured this and do this the right way. The opportunity is not only for the convenience of the customers who are the citizens of the country, but it also improves along all other aspects. So, some of the parameters that they use to measure financial inclusion could be really funny, such as savings. I mean, how can you ask somebody who doesn't have money to save? Somebody who has a low income? And most of these companies, once they get in, the most of what they're selling is “Come, save with us”.

So CBN recently renewed the regulation for MMOs, and it included that now they can take on savings from customers. I felt like that was a joke. Like the real thing that these people need to do, you haven’t enabled them. They can’t give credit, if they cancel international money remittance operation license. These are people who get funds from their relatives in African countries or outside of Africa. You cancel that for MMOs and you put that back in the banks. These are the same banks that are far away from these people. They cost them their arm and a leg to get to them to get it *[the money]*. And then you now say that they have to get this money in the currency of the sender and then this customer has to go look for the bureau de change to be able to change this money at whatever

price that these BDCs are placing. It's like taking one step, and I literally mean one, and then taking about 50 back. That's how it goes, you know. So, the opportunity in this is you have so much to do and it goes across the lifestyle of the customer. And then to be able to pay taxes because they know what is going on, that the governments are doing the right for them. They'll be able to say, come out to vote.

You have so many issues and also access into the digital identity. We have so much of that's scattered everywhere, the BVN *(Bank Verification Number*) today, the NIMC *(National Identification Management Commission)* tomorrow… whatever it is going to be the opportunity is that these MMOs can be placed in a position where they add the link between the hinterlands, the peri-urban, the war areas and over densely populated cities. We have so many of those. I mean, very few of those open cities. And that's where everybody needs to come. It's crazy. There's so much happening. Opportunity lies in being able to build this customer experience across their life.

The second opportunity for mobile money currently that I can see is that the uptake is high. I mean, I saw some information recently about how the two major mobile money operators, Opay and Paga in Nigeria, were really doing well. Paga has about over 17 million unique ID wallets. Opay, I think about five million. And they're also doing really well and all that, irrespective of the regulations. But the people, I realized in the ease of having to transact or be onboarded in financial services space due to the good or the strikes from these companies. I mean, Paga has over 27,000 agent points in location. It's almost like for every street you turn you could find them. So, the opportunities that the customers are beginning to realize, the importance of the MMOs and that's what the MMOs can also latch onto to expand and just have a booming future.

Dustin: Yeah. Thanks a lot for the very valuable input. You were saying a lot about MMOs. And for me it's interesting because we were seeing that there are these PSP licenses where MMOs in future might most likely play a bigger role. So maybe just in two sentences, what would be the role of fintechs then in the future, in your opinion?

Sharifah: OK, so, the role of fintechs in the future - I really can't say because of what is happening right now. I mean, the footprints are now being laid right now for us to be able to see that MMOs will be able to do what is expected of them and the fintechs what is expected of them. So the way I see it, right. Banks have their place, you know, syndicated transactions, syndicated loans, positions where they are uplifting top, top, top private companies assisting with a really large amount of L.C. *(letter*

of credit) and connecting companies on the huge bonuses and also assisting the regulators to do the right thing because they didn't get it right initially, right. The role of fintechs currently apart from them really struggling to show their value. For every business or everything that is being done - as soon as technology comes in, it's a given that accessibility comes in, affordability comes in, objectivity comes in. So, how is it that technology comes into the financial space and it has to struggle? It's a joke, right? So, I'm saying that currently the role of fintex isn't - it's almost as if you're trying to struggle with the banks. Also, because the banks have all of the data on the customer. So, that's like putting them in a position where you can't thrive unless you go through the banks.

The interviewers thanked Sharifah for her elaborate answer and started to present the two driving forces deducted from the authors' previous Delphi study and the first scenario. After presenting the first scenario (The Digital Divide) Shariah stepped in and commented on the scenario.

Sharifah: Yes, this ties to what I was speaking about on how you take savings products to those who don't have money. You should rather take, say, transaction based - when it comes to air time or having to transfer funds to their neighbor, whether they're buying things from the riches that they have and also insurance… insurance is really big. I mean, a smallholder farmer, the little money that they will use to buy their seed or whatever… rest of it is gone. But how do they make any kind of insurance? Insurance is really big in other places, not only Nigeria.

Pensions is also very big, informal pension. You should have a lot of these micro pensions. "Do you work with anybody who pays you as low as XXX NGN?" "Do you want to put XXX NGN aside every day?" "Will be here to do that for you." Because that makes them know that this is different from just savings. I mean, this is that "I'm planning for my future". Because if you're somebody who doesn't have money to just save, they are rather "Whatever I have now, I eat because I'm really hungry". But if I explain to them what pensions is, it's like: "OK, I get it, let me split it into half, so that I can eat now and I can eat again in the future" It's simple. But we don't have all of the things… MMOs, PSBs can't do underwriting for insurance. And all of these things are exactly what they need. So, yeah product match..

Dustin: Absolutely. And just to highlight this aspect in this scenario *(The Digital Divide)* is really led by the fintechs. So, not by MNOs or banks who play a minor role in this scenario.

Sharifah: Yeah, actually fintech can't even do that either. The only thing that fintechs do is just the credits. Most fintechs have the digital bank license, they can't give insurance either. They can only just have it indirect - maybe like a marketplace for insurance on their platforms, but they can't do it either. MMOs still can't do that. It's just you can't do the underwriting yourself, OK? MMOs can't also lend - But the digital banks can lend.

Dustin: Yeah, it's also about partnerships and basically who's really the dominant player, who's the main initiator in the value chain.

Sharifah: Yeah, these digital banks that can lend - the people in the rural areas have very limited access to Internet services. Most of them do not have the agent points that MMOs have. So but if they are giving the MMOs the license to be able to lend, they will lend through agents and it will be the group lending the ground to start a new lending. But the digital banks, they have to leverage on the application being on Internet services. And those people don't have that in rural areas. So they are all saturated in the urban areas trying to compete with the same customers. One customer takes five thousand from them today and doesn't pay back. He goes to another one, takes ten thousand again, pays the other five thousand. Because they are all in the areas where they need internal services anyways. But the MMOs will have agent points across are not given the license to work. So, how does that work?

The interviewers agree with Sharifah and use her input to build a bridge to the second scenario (Modern Nigeria). Before moving on to the third Scenario (Baby steps) Sharifah had a clarifying question.

Sharifah: Let me ask a quick question. So what why have you put the bank and MNOs together, don't you assume that the MNO is a fintech?

[…]

Sharifah: The mobile network operators you are putting them together with the banks. Don't you think that they are also fintechs and the banks should be on their own because most MNOs likely will not thrive without any financial technology assist?

Anna-Sophie: I think, I get your point. But the thing is, what we basically meant with this model is that, because in other African countries such for instance - so we always have the example of an M-Pesa in the back of our head. And this was really MNO-led. That's what we meant by more traditional value chain models that you see more often also in other African or emerging countries. And we feel like a fintech like Paga is really different to the more traditional mobile money value chain model.

Sharifah: I totally get it you now. I think the reason why that happened was because we had to - MNOs in Nigeria, had to morph into proper fintechs because of the bank-led strategy from the CBN. It was never given a proper strategy, as a telco-led, for example, which is where you find with Safaricom and M-Pesa. Well, I totally get this now. Please go on.

The interviewers explain the remaining two scenarios (3. Baby steps, 4. The rise of the sleeping giant). Sharifah steps in again after the scenario 4 was presented.

Sharifah: I have something to say on that slide *(refers to slide with scenario 4)* before we move on.

Anna-Sophie: Yeah, sure.

Dustin: This one?

Sharifah: Yes, this one. So, I really do not believe that the banks are going to be able to transform to serve the underbanked and unbanked. Maybe call Nigeria's case really peculiar. Right? But these customers are not the type of customers that the banks are looking to serve. It's really simple. I mean, we should all just have our niche market. That's okay. You would be surprised about the verticals that the fintechs are looking into and everything. The MNOs are already doing the same. And we have some MNOs who are thinking about bringing in contactless POS, you know, online payments… Paga, for one is hugely invested in API documentation that allows this sort of seamless transactions and transfers on all platforms. So huge payments, widgets and even banks can leverage on this if this is what they wanted to do.

However, that is not really what the banks in Nigeria are more focused on. The only reason why it seems to be like that is what they are doing now is because it's a bank-led strategy. It's like they have to appear or look or seem to look like they're doing it, but they can't. I mean, all dimensions

that that are needed for them to be able to do these: having branches in rural areas, top notch customer service availability, understanding of the customers, they don't have these things. Because corporate business and commercial business is really what they are all about. So, I really think that MNOs will definitely be able to crack the market alongside collaborations with the fintechs if they don't morph into fintechs eventually themselves.

Anyway, talk about embedded finance, you know. And with the banks really just taking over what they're supposed to do and hopefully open bank banking to be able to allow the seamless transfer of data where you have fintechs that are more invested in open bank and be the bridge between the banks and other companies – fintech are more invested in getting this job done.

Anna-Sophie: Thanks, for your comment, because that would have been one of our next questions. What do you think how relevant each of these scenarios are? You saying that you, for instance, don't think that banks will be able to serve the unbanked or underbanked market? That's a very valuable input in that case. And that's actually how you use these scenarios. So, you look at these different scenarios and then you think about how relevant are they? How useful are they for companies' strategies? You started with the fourth scenarios, but maybe you can also just briefly say by looking at all of these scenarios, which of the four do you think is the most relevant or the most realistic one, or do you think it's going to be something in the middle, let's say?

[…]

Sharifah: Is that anywhere here where you are open to talking about regulations? Because actually, no matter how much we want to have this future of financial services being as idealistic as we hope, we will not be able to take away the support, the knowledge, the timely and prompt intervention of regulations. I mean, technology is moving like hey hey hey *[snaps her fingers]*. And we need the support of the regulators being: "We see you, we hear you. We have put in place A, B, C to be able to tackle this". I mean, I don't know. But I want to believe that if regulators had just a set up for research, for data analysis, for futuristic anticipation of what the stakeholders need, nothing will really catch us unaware such that we have to wait before another bulletin is given a year after.
There is this company Trium – do you know Trium in Nigeria? They are a really big proponent of open banking in Nigeria. I can only imagine how much work they're doing. And it's not more than

what the regulators should do. The investments that they have put in to be able to say that these things have to work for us to get to it right.

Actually, the rise of the sleeping giant is exactly where we should be. I mean, talk about our population, talk about even the telephone penetration as high as it is now. Talk about the emerging market position that Nigeria is at currently. I mean, everything does seem to be working well except for the proper stakeholders who are…

Honestly, under the rise of the sleeping giant will have been exactly the type of where we're going. But I can assure you that the banks will not be able to transform. Because legacy banking is not poised to transform. I mean, it's a no brainer. I mean, even the services that they are supposed to do as a bank and must show that they are actually being excellent at it, much less add in what they cannot.

So, I want to say that, yes, the collaborations at the end of the day is going to really be in fintech, being really poised to be able to connect to what the customer really needs. If it's because you're thinking about the customer, why open banking will be really appealing. But why you don't think about the customer? I mean, if the customer had an area of where to choose services from, know how much it cost to take B2C services. If really the customer was who you were after all of these things, it would not be hard.

Okay, so under the "Modern Nigeria" *[scenario 2]*. Obviously, we have a lot of issues with regulations. And did you also know that recently CBN also increased the license and certification fees of these non-banks? Those are high entry barriers. It's like saying: "I really like you, but I don't". I think that there should be one place in all of this right now that speaks to the need for support from regulators, the understanding, the knowledge, the prompt intervention of regulators. And before you know what is happening in the fintech, the MNOs, even the banks will thrive.

Dustin: Yeah, I think that there are some underlying variables where we really think, for instance, regulation is key. So, regulation can either promote financial inclusion and there's the political will or not. And this is really influencing, of course, the final outcome. But on the other hand, for instance, your CEO, I think, was saying no market in the world, no payment system is led by a telecommunication company….

Clarifying because of network issues.

Dustin: I think there was a statement from the Paga CEO who was saying that no MNO was leading like a payment market globally. It's just interesting to think about maybe the fintech units of banks. I think they are seeking approval from the CBN currently, for instance, Access Bank for their separate fintech unit. Maybe they will become successful and maybe they will then transform to serve the underbanked.

Sharifah: Yes sure. Yeah, if that is their focus. If you focus on it, definitely you'll be able to achieve it. But that's not the bank's focus, the legacy bank. That's not their focus. And just let MMOs in Nigeria now focusing on…. Paga's focus is being able to really give a billion people access to financial services. That's the focus and everything that it takes get there. Same thing for others – I think like Carbon. Getting you this credit as fast as possible. Once that is the focus, definitely we'll find a way to get there.

Dustin: Maybe moving a little bit to Paga. So, you were talking in the beginning a lot about customer centricity, but have you actually incorporated those variables like those external drivers and your strategies? And when you see those scenarios now, are there some somehow useful for you?

Sharifah: Oh, yes, definitely, definitely. The growth team are really poised to be able to gather this data and say, why did this happen? Why didn't this happen? What can we do? How else can we interact with these customers to find out what they want? The business team to is always relentless in engaging and onboarding more partners. As soon as you hear that this is a new business that the customers are into, you onboard them and tell the customer: "Hey, you can now make those payments here, you don't have to go all the way to ABC to make these payments".

As simple as understanding the financial conditions of people and say: "If you pay this bill here, we will give you a two percent chargeback or three" just because we know that you'll be happy to get 200 NGN back from what you just paid. It also goes as far as also setting objective key results that really relate to how these customers perceive us… what is the perception. Are we really just the ordinary MMO? If you were to stop and just see: "I really only need to make this payment. Where should I go?" Will Paga be named? "I really need to make this payment". Will Page be named? Or "I need to have a job. I don't have one currently" Will Paga be named as an agent, have a means of income and also be able to serve your community? So, yes, all of this go all around the customer as

to being able to be positioned enough to give them everything from top to bottom on what it means to have seamless and affordable payments.

And that's why Paga is so heavily invested in technology. Our dev team is so robust. I mean, like everything that you would need when it comes to payments, build peer services, it's just all there. We even have conversations with banks as to how we can leverage this. And of course, you know, that's a group company, we newly opened company in Ethiopia, where the tech side of us is really more vibrant in that aspect. And, you know, it's those kind of situations that let you know that it's all about the customer and how we can eventually be there for them.

Anna-Sophie: Do you think that this approach, for instance, is going to set you apart from MNOs, if there are able to enter the market on a larger scale? Because if the CBN grants the PSB to them… They also have big networks. For instance, MTN and Airtel, which are really big in Nigeria. What do you think is going to happen to Paga then if they are able to replicate their success in Nigeria?

Sharifah: OK, so it's a collaborative work, right. And I really want to believe that the eventuality should be how the customer chooses. I have so many options and I can either use Paga, I can either use MTN because, we are all about these people being financially onboarded and economically independent. And it's as simple as that. I can assure you, it's not everywhere that MTN will be able to get to. And it's also not everywhere that Paga will be able to get to. But the joy of it is that wherever we all are, we're doing the service that we are being called to, which is satisfaction of this customer. And we can be options. If the network of MTN is down and up north. Or we can use Paga because the customer shouldn't have to wait.

That actually puts a synergy into everybody, where we know that it's not a competition, it's a coorpetition between you and I where we are having the joy of serving this customer. And I said the focus really should be on the customer. As long as that's in focus, we all work together. I mean, Paga sells airtime from MTN to our customers. Yes, we sell Airtel. It's not stopping Paga from still raking in their revenue from airtime. Right.

I think the reason should be cooperation between us all. Currently, we have about 106 million adults. It shouldn't be for just one person or two or three.

Anna-Sophie: So for you it's also the goal to build this open platform ecosystem where people also, without any friction can send money to each other no matter the provider. So, this is also the goal for you long term?

Sharifah: Yes, it is. And I need to mention at this point that there actually is a portal with Plaga, where all you have to do is put in your number for servicing on airtime purchases and data. So that's the Internet data. So, you just put in your telephone number, you don't even have to say it's MTN or Airtel, it automatically know what number it sees. It's as easy as just putting the amount you want to buy and press sent. That's the level of where we should be heading, where we're simplifying everything as it goes on. As technology allows, the simplicity becomes far reaching. You know, it's not only about purchasing airtime or bill payments, but also in being able to see that I need to purchase…

For people in the rural areas. We don't have a real system. Well, it's upcoming… Imagine a system where there are agents who can give these services to the customers in rural areas. It goes beyond just the payment sector, it affects other businesses, other aspects of the customers' lives. So, if we're saying that we can have agents say in the peri-urban who can deliver goods and services to those in the rural area with as simple as, say, clothing from the markets, shoes that they would like. All they have to do is just say: "Oh, we have looked at this via the Internet, we would like this". And then you make your order in the city in the states and in seven working days you get your stuff in the rural area. You should go as far as that.

Dustin: Maybe moving a little bit to implications. So, basically you were saying, OK, the goal is the collaborative ecosystem. The rise of the sleeping giant where we have the transition to customer centricity would be the perfect outcome. What are you doing today as Paga to contribute that this outcome happens? What are the strategic implications for Paga? And also maybe secondly, what are you doing or what strategies do you have in place to avoid the unsuccessful transition?

Sharifah: OK, at Paga we look at it as we will be pieces in the whole picture. Right. And so we don't have to get it. We don't have to be the full solution. We can be pieces to the solution and then eventually we all get to do what we are supposed to do.

In that way, all of the units, the CEO to the very last person as an intern… a new intern who just came in like yesterday has to get it as much as the CEO gets it, right. And that's the passion. Like

I said, it's about the customer. Why are we existing? And as long as we know that we want to create an ecosystem that enables people to digitally send and receive money and deliver financial services to everyone. Once we're able to get that.

Now, everything that comes into play, such as massive, transformative purpose. Let's say, I want to make it simple for one billion people to access and use money. I mean, as huge as that idea is, break it down to what is it going to take us. Are we passioned about this? Do we know our customer? What are the technologies that are put in place to be able to do this? Collaborative partnerships that have to happen, the empathy... Now, we also have to put in place for the regulators and also our core stakeholders, particularly also the customers who are doing all of this work. Putting in why investing heavily in technology… I really cannot say this too often. Honestly, it is a very big deal because we all know once technology comes in - in Industry 4.0, it's all about technology anyway. So, if you're not doing things with that, it's like where are you?

We are investing really heavily, like I said, our portal with everything that has to do with making payments simple and accessible. Or getting to know the companies, the small businesses, the micro businesses, getting to know them, being able to position ourselves to be able to be the go-to payments platform that they would need.

And one of the investments that I would say that was actually a very big deal in Nigeria at some point was the ability to send and transfer money to telephone numbers. Not many people can do that. If our goal really was to hit one billion people, then we have to have such strategies that are not common, such as that. I mean, if I can transfer money to your email or telephone number, it means that I can access more people. Right.

So those are the things that we're doing. Our partnerships are always about… It doesn't matter if we're both in this business. It is that "Can I leverage on you, can you leverage on me?" to be able to get the customer and being able to position ourselves.

Like I said earlier, I mean, Paga is like.. even other MMOs that are already in place, people, they still say they are Paga. So, they say "I want to go to Paga". Even if the person can be an OPay agent… That's how much we are able to position ourselves in their mind with the empathy, getting to know the customer, the formation over and over and over again until we get it right. So that's how I see we position ourselves to be able to get through it.

Dustin: Yes! Do you have any other questions? I think we're more or less done, right?

Anna-Sophie: You were very extensive in your answer, so thank you so much. That's really, really great. I don't have any further questions unless still want to point out that you think we haven't talked about enough?

Sharifah: No, this is a really interesting topic, honestly. Yeah, it's always the kind of discussions where once, you know, digital people, service people, fintech people come together… and we discuss those things, rob minds and be like: "What are you guys doing now?" "How can we do better?" Well, that's always, always for these futuristic people anyways. But yes, well done, really good topic.

The interviewers thank Sharifah for taking the time and her kind cooperation.

End of the interview

Appendix 12: Interview Transcript OPay

Interviewee: Moses Sule, VP Online Payment & Retail Acquiring at OPay
Interviewers: Anna-Sophie Somo Watong, Dustin Okwuagwu

Start of the interview

The interviewers welcomed the interviewee and verified whether the interview can be recorded as well as whether the interviewees name can be used. The interviewee further agreed to the authors may using the company's name when referring to strategic implications in the data analysis and discussion sections of the thesis.

The interviewers briefly presented themselves and asked the interviewee, Moses, to introduce both himself and OPay.

Moses: I have about 15 to 16 years of work experience. I think I'm one of those very lucky folks who started out in banking in a digital bank. I joined Citigroup or Citibank about 15 years ago. It was the first time that any of the banks in Nigeria was providing electronic banking platforms. In typical banking in this part of the world, you walk into the bank branch, a typical brick and mortar kind of branch or fill out a paper and you get a check. Fifteen years ago, Citibank had the views of something called "Citi Direct Online Banking Application". So, I joined banking, this was my first employment. I was just super excited as a young guy, as you enter a bank and what they wanted to do was to ensure that everybody, a customer, could be served electronically. So that means it just gave me the future I have today. Along this line, I've also moved to three commercial banks, two of which are international, *[for instance]* Standard Bank Group from South Africa.

But I know there are two very important decisions I've made in my career. One of them was leaving banking to Paga. Paga is the foremost mobile money operator. So, beyond OPay I think it's also good if we could talk a bit about Paga in the early days of mobile money. Besides, I took up the role as VP as a day one staff at Flutterwave. Flutterwave achieved unicorn status in less than five years, and I was a day one staff.

Let's come back to today, I'm the VP for sales and online acquiring at OPay. What does that mean? When we talk about the mobile money use case in the first period, maybe the likes of Paga

some seven years ago, and what mobile money has become today, when you look at the likes of OPay and all the new players, then we can get a sense of what online retail acquiring will look like. So, your typical agency business is predicated on brick and mortar. You walk up to an agent outlet; you have saved physically. Mobile money in the old times has always been offline because there is the physical interaction, but the future is online where the agents can now serve customers electronically online without a payment gateway. They are still agents; they are able to sell whatever they serve.

Anna-Sophie: Thanks for your introduction.

The interviewers continued giving a quick overview of the master's thesis and the set-up of the scenario analysis.

Dustin: We just want to briefly get your unbiased view on two questions. Firstly, what are the biggest threats and opportunities specifically OPay is facing in the next 10 to 15 years? And secondly, then specifically viewing on the role of fintechs, what do you think is the role of fintechs in the future Nigerian mobile money industry? Just some thoughts would be interesting.

Moses: OK, thanks. In answering that question, I need to go back some 10 years ago when the likes of Paga were offering mobile money. It was not the market at those times, it was the regulators, the central bank that had the vision of financial inclusion. The only way they could move was to use the stick approach, not even a carrot, to penalize consumer behavior. So that means if I went to do certain transactions at a bank branch, there was a fee. So, if I go to the bank branch to deposit funds, maybe I go to deposit cash or I go to withdraw certain amounts, they charge me a fee. They wanted to move people away from cash. That means mobile money operations started. The only way customers were served back then was using your feature phone, so you need to have java application. So not Android devices, just your feature phone, Nokia phones and you have java application running on them.

The first trouble was that Moses who had maybe an Android device, will always depend on an agent who was going to serve me with a feature phone because it was classified as the lowest rang of the ladder. The only kind of transactions you could do at the agent location was cash-in, cash-out and bills payments. So that means I go there to take money out. There were no other use cases. There was no way you could scale such operation if the consumer is limited to cash-in, cash-out and maybe the bills payments.

Fast forward, two years ago when OPay started, OPay wanted to build a super app. That is what the future looks like. The super app means: yes, I don't have a bank account, but I can still maintain a wallet because of my KYC level. However, if I have a smartphone, I am able to do whatever I need to do. The difference between mobile money and a general banking account is that your mobile phone is the means of identifying you. Your mobile number becomes a bank account. Unlike the commercial bank account where the bank account is created by a bank. I know you know a bit about that, maybe if you've read about M-Pesa. Since the people are super aspirational, they would rather want to have a GTBank account as any bank account because they can get a debit card. Me, just using my mobile phone, I can't get a debit card. So that means I am only going to be served having that physical interaction with the agent.

The first trouble is that because the people are super aspirational, they want to be able to operate that account in the same way as someone who has a bank account in JP Morgan would operate meaning you have a debit card, you have a mobile application where if you receive funds, you can transfer, you can check your balance. You don't need to go to the physical store to engage an agent to provide that level of service. Here is the trouble: because smartphones have become very cheap, you could get a smartphone equivalent of 10,000 - 15,000 naira, divided by 500 to get the value in euro *[equivalent to approximately 20€]*. Gone are the days where the people to get a phone would have to pay maybe 500,000 naira to use an iPhone or Samsung. The people who can't afford the iPhone can easily just get a “tecno phone” from China, which is somewhat very cheap. So, you have more people with a smartphone.

The future that we are seeing today is that any mobile money operator should be able to allow the consumers to operate as if they would have a commercial bank account. What does that mean? The people should be able to have a mobile phone, like a mobile application that they can do whatsoever. Your mobile number is your wallet, your bank account is your bank account, so these are instruments. The unifying factor is that I have an instrument, which is my wallet, my telephone number, that's my mobile money. Someone has a bank account, so the instrument is his bank. How they want enjoy service must be almost the same. That means don't say because I am using a mobile wallet, you now treat me as though I am still in 1930. I want you to treat me as though I am in 2021. So that means everything you can do on the bank account side, you must enable me to do that. That is the distinction that is happening now. In the days of Paga, we were treating the people as though they were still in the dark age. We didn't give them a mobile phone. They needed to go to the brick and mortar every now and then to do service to even check their balance. To get the balance in their

account, they need to interact with the physical agent. Today, I can have a mobile wallet and have the mobile device, which could be an Android device, a smartphone that I can have an application and do the basic things someone can do in the bank. I just wanted to make this differentiation what has unified us today and what did make maybe the likes of Paga in the old day grow aggressively.

Dustin: Yes, very interesting. OK, in a way you answered it, but talking about the role of fintechs in the future would be interesting. Since we are seeing some other players being successful in other countries of SSA, especially MNOs. Where do you see the role of fintechs specifically in this context in the future of Nigerian MM?

Moses: OK, so the second thing that we also need to note is, if you look at the success story of the likes of M-Pesa in East Africa, it is led by a telco. The edge the telcos have, they are the owners of the infrastructure. That means all the mobile numbers is an infrastructure by the telco. The telcos also have a solid distribution network. So, you know, if you have the commercial bank, you need to build something and the cost of operating the commercial bank is very high because if you go into a physical bank branch it must be beautiful, cozy and everything must be provided. But the telcos do not need to build anything. They just are to get a small mom and pop shop like a kiosk, and people could go and open an account. 30 million people have bank accounts in Nigeria, almost 150 million people have mobile devices, so this is the difference. Because of the huge success of the M-Pesa model where Safaricom, a telecommunications company is the one driving that.

Coming to Nigeria, the banks are regulated by the central bank. The telcos are regulated by National Communications Commission (NCC). Everything that has to do with financial services comes under the purview of the bank. The central bank made the decision that a telco is your typical antitrust as in the US where the telcos are too big. The moment they are the owners of the infrastructure, if you allow them play directly on the mobile money space, they are too big. That means they would suck up the entire market because they are the owners of the infrastructure, which is by far the most important element here. So that means they could also frustrate the banks. That means if you want to use your banking application because you are leveraging the data of the telco, they can also just make it porous so that you are forced to use the mobile money operation side. So, the central bank decided that the telcos will never have mobile money licenses.

Now, if we truly were going to experience the kind of growth that we have seen in in Kenya, it should have been for the telcos to have mobile money license because they have the technology,

they have the distribution network, like everything that is required. But because the central bank will always protect the commercial banks. So that means this decision was done to exclude them from this. So first, to say, the future truly would have been to allow them to play. If you would have allowed them to play in an open competition, they would have done very well. More people would have mobile wallets to do this kind of stuff, it is not rocket science.

Now, in answering your question. The role of fintechs today, is that whatever service fintechs offer is agnostic. If a bank offers a service, it's because the bank wants me to open an account in JP Morgan or Barclays Bank. That's a bank. If a telco offers a service, they want you to have Sprint telco line or MTN as the case would be in Nigeria. But if a fintech is offering the service, the fintech is going to offer a service that is agnostic, that means if you have an MTN line and your preferred bank is going to be Zenith Bank, I can still serve you. Here it's the distinction: if MTN is offering this service to you, MTN is our biggest telco, MTN's intention is to make me a consumer of MTN. If Zenith Bank is serving me, their biggest intention is to make me a customer of the bank. But if a fintech is serving you, their biggest incentive is to get a little fee from that transaction. They don't own customers. The fintech typically don't own consumers. They use financial technology to solve financial services problems. So that means a fintech today, like an OPay, yes, we have people who have OPay wallets. However, the core of what we offer will be for people who don't have OPay wallets, who want to leverage the infrastructure that we have. The role of fintech today is purely that because they are agnostic, they are not going down to say, come on, open an account with me. They want to leverage any available API to provide services to the consumer just to make life easier for consumers. It gives them that trust factor. This guy is not asking me "come open an account with me", he just wants to make service very easy for me.

Dustin: Alright, thanks a lot.

The interviewers explain the four different scenarios, i.e., 1. The Digital Divide, 2. Modern Nigeria, 3. Baby Steps and 4. The Rise of the Sleeping Giant. Thereafter, the interviewers verified that everything was clear allowing to ask any remaining questions regarding the scenarios.

Moses: I cannot tell you how impressed I am just looking through the imperatives, you guys have listed in the four buckets. Super impressive. You've been able to explain what the upsides and downsides of each of those would look like. Well done.

So maybe let's also come to something you need to know about the PSB, the payments service bank. Today, for every bank where they make money from is not from deposits where they can generate deposits. It is for you to be able to give out loans. The sweetener has been taken off from PSB. What it means is you can mop up all the cash in the world, but you can't give loans. When you get money in, the juice of it is when you give out loans. The CBN is tactically said as a PSB, you cannot give out loans, so you are still dependent on the commercial bank. You just get a license to build a distribution network and the moneys will come. You need to now go to the bank to do the lending part of it, which is where the sweetener is. Getting a PSB license is fantastic, but will the MNOs leverage that? Because they are not into the business of doing freebies and just want to do financial inclusion. They also want to monetize whatever they do.

I think the very interesting part is the Modern Nigeria. I can tell you where we are today in terms of the Modern Nigeria. Two Fridays back, the central bank officially issued a revised draft exposure for mobile money operators that allows mobile money operators to now give credits like mobile money and to do savings now also. Historically, mobile money operators could not, they could only hold the money in wallets, in trust, they can neither do lending nor savings. So now the revised guidelines that came out two Fridays back, permit them to be able to do these two services, which is one of the things you listed, savings and credit kind of products. That's one.

Number two, modern Nigeria means that your point-of-sale terminal, that is typically used at the supermarket or maybe the petrol station is now being used for agency banking, so that means nobody's using feature phones. I can walk up to an agent with a debit card, swipe my card to do cash-in and cash-out. So just to tell you, OPay has 350,000 agents across Nigeria, across every single state, every local government. The people are not using mobile phones, they are using point-of-sale terminals. That's on the one side. OPay has been given the authority to issue debit cards, so the future means you, who is in the remote areas up north, maybe Zamfara, you can now have a debit card. Remember, for you to have access to your mobile money, we have the three-tier KYC. Tier one means you just bring your name and your mobile phone number. We don't know you, so just little you don't need to go bring your bank verification number and all those difficulties that you typically will require. We are seeing that transition. Low barrier the people already have mobile phone, you can now become a tier one and we can give you a debit card. That means you can walk up to an agent in your location to swipe your card. You are now making it easy for those people to be served. For the people who don't have a smartphone, they also not educated to be able to operate mobile banking on smartphones, the people who are in the village, they have a debit card. They can walk up to an agent,

swipe that card. So, Modern Nigeria is what I see play out, it's super fantastic the things you've listed in Modern Nigeria.

Remember that the fintechs today can raise funds so somewhere you will see OPay is raising maybe raising four hundred million dollars. So fintechs who will continue to raise funds to help them drive into the new future. The future is not to serve people like Moses in Lagos. It is to serve the people who are in the remote areas, who you can charge a fee that the people won't worry about. Remember that for those people to have access to banking, they need to travel long distances. You are telling them for you to pay, you can pay me higher because I'm taking the trouble of you traveling long distance, you'll be kidnaped and all those kinds of troubles they face. The people who pay you the fee, you can always rest assured that you can get the money from them. Thanks, fantastic imperative you've raised.

The customer-centric side, which is the Baby Steps. it will take a long time for the telcos and the banks to be able to be viewed, because the way they've been built over time, they are not agile. They take a longer time to build stuff. The telcos are fine with their data money, they are fine with the money they make from voice. The banks are fine with giving out loans and credit and all this stuff. They don't have the wherewithal, not that they don't have the intelligence it's just that because of their processes, it would take them longer time. Their baby steps would become baby steps for forever. Not because they don't have the intention. I have been in a bank. You want to put out a product, you need to have clearances, control, or deeds. People who truly don't even know what the competition is doing, they just suck you out.

But the fintechs today, you can incubate and curate a product in two weeks, get it out there, let the market test it so that baby steps will continue to be baby steps. They can like it, "oh we want to go into it", but truly, because of the way they are structured, they will continue to have baby steps. The Modern Nigeria is super, very great.

Dustin: So, the Modern Nigeria would also be the desired outcome in your opinion.

Moses: Yes.

Dustin: All right, interesting.

Anna-Sophie: I have one question in mind, so since you say that the Modern Nigeria would be the preferred outcome, can you maybe tell us a little bit more what OPay specifically is strategically doing to have their part into building this future? Because I think also for Modern Nigeria to work all these underlying things like having the digital infrastructure and if you say you want to reach people in rural areas, they need to know how to use a debit card and, I think, need to trust that they put their money on this. So, I was wondering, from a strategic perspective, what are you more specifically doing to achieve this future?

Moses: Yeah, so the Modern Nigeria, it's beyond even OPay taking digital financial services to the people in the remote areas. The commercial banks today, there is a category that they can play, which is called superagency. The superagency license can be given to three people. As a commercial bank automatically, you can play super-agent. As a mobile money operator, you already can play as a super-agent. Likewise, private companies can come in to just apply for superagency. So, because the banks know that they cannot build the infrastructure again, I mean, the physical bank branch, the beautiful, gigantic building you see in the cities, you don't need to go build those. So that means the banks are also working with fintech players to take point-of-sale terminal. So that means you can see Firstmonie from First Bank, the biggest bank by some indices, the oldest bank in Nigeria. Firstmonie is also one of the banks that is also leading the charge with like OPay and Moniepoint. The bank is also the trust factor and is also going into agency banking. You will see a bank walk up to OPay and say "OK, fine, you can bring the technology, you can help me create agents", so I'm saying that collaboration is happening on the on that side. The trust factor just to answer is not OPay going in. Who is OPay? The banks are also leveraging, GTBank and all the banks are leveraging the infrastructure of maybe the likes of OPay to build that distribution network on the one side.

Number two. One of the things that COVID has done for us, we are super grateful because we always thought that the people in the hinterland will not embrace the future. So, you know, we are using Teams. The people in the hinterland can now use Zoom, so they can also use video calls. Before we thought they couldn't. Covid brought restrictions where people could not travel to see their grandchildren, they could not see their children. They were forced to embracing smart technology so those people they know how to use their debit card. If your son sent you money and say, "go to the agent location to do cash-out", you would have to. But that's beside the point. The most important thing is that for them at their level, the likes of OPay is also giving them debit cards. We started issuing debit cards. So that means and to operate a debit card is very simple because they still need

to have that physical interaction so the agent can help them to swipe the card. You can put your pin, I take my face off, all those kinds of basic stuff. The agents will continue to provide advocacy and education because the agents are incentivized for doing whatever they do. So, they will now continue to provide the education.

For OPay, what we plan to do is the retail side of the business, which is what the future truly is. If I walk up to an agent to cash-out, I just went there to take up maybe 10,000 naira. I went to buy bread. I went to buy tomatoes. We have seen, those places where you typically go to pay for your groceries. You don't need to pay them with cash and that is where the future is, so let me play it out to you. You are seated in Copenhagen, or you are in Germany. You are my wealthy brother always abroad. You send me a $100. Rather than me going to an agent to take that $100 bill, I can have it in my wallet. If I want to buy bread from the local person who sells bread for 500 naira. When OPay is now putting the point-of-sale terminal in the hands of those agents so that the man who is selling bread, even the cobbler, should be able to accept micro-payment 500 naira, which is less than one euro. We are now putting point-of-sale terminals, free point-of-sale terminals in the hands of those people so that they can now accept payment. I will mostly speak. I may not have a debit card. I have a wallet. I can now decide to say I want to cash-out at the agent, so the instrument is not a physical instrument. I have a wallet. I can go to that person and say, "OK, I want to pay". "Tell me what your wallet". You give your wallet number, so they can now take the money of your wallet like cash-in. But this time around they are not giving me cash, I'm using it to pay. So that is the future that we see. The future is not for people to cash-out, to now go and spend cash. The future we see is for those micro locations where Moses, if I go to supermarkets, I can pick my card to pay. But the guy in the village, he will go to an agent to cash-out and now is going to pay those micropayments. We are also putting point-of-sale terminals in the arms of these, so we are using verticals. We go to the places where people typically spend, so we have broken the businesses especially in the offline side into multiple verticals: pharmaceutical, healthcare, restaurant, or farmers, like some of these places. We just put point-of-sale terminals there so that people who have OPay wallets don't need to pay with a physical instrument. They can pay directly from their wallet. That is the future that we see.

Dustin: Interesting.

Anna-Sophie: I just have a follow-up question regarding this. Just really quickly to that point, you mainly talked about payments right now, but I was wondering whether you also have a long-term

perspective or strategies in place where maybe from this wallet, people can also take out a loan, for instance, if they want to start a small business. I mean, this is in the end what would make the unbanked status fully banked, that they cannot only store their money, but they can also have a savings plan or take out a credit. And that's what I was wondering about. Whether this has also incorporated into your long-term strategy.

Moses: Yes, it's already available today. So that means we have a "credit me" products where people who have money in their wallets can now get loans. We also have savings product. Before this update, we needed to have a microfinance bank to be able to do this part of the business. Because you remember, the MMO license does not permit you to do neither savings nor credit. We had a microfinance bank subsidiary which was offering those services to the people who had a wallet. But with the new guidelines, the revised guidelines, I can share after this call, I would just drop it, MMOs now don't even need a third-party license, you can do credits now. So, yes, of course, credits and savings are already there and part of the future.

Dustin: Thanks for sharing. My question is the following: when you're seeing these scenarios, of course, you were mentioning, OK, Modern Nigeria would be ideal. However, I would just like to challenge you and ask, OK, in case one of the other ones would become true. Do you today have any, strategic reactions, or parts of your strategy in place that would have an answer to, for instance, the Baby steps or the Rise of the sleeping giant scenario? Because historically banks were playing a very large role and they are having separate fintech units waiting for approval from the CBN that should be more agile. Do you have any answers in place already now?

Moses: So, yes, thank you, thanks a lot. So, yes, there's also going to be that trouble where the sleeping giant will win the rights. We've seen the likes of GTBank, GTBank and Guarantee Trust Bank, they've gone OLDCO. So that means they've also discovered that the trouble that they will have in terms of being a big bank, the process of getting products out there. So now they have floated, and they've now established an OLDCO, so they have a fintech. So that means the fintech can now compete with the likes of OPay. The one we all fear, which can also be, is the Rise of the Sleeping Giant, because it's very true. They've been doing it for some time. Some of the banks have been as old as 50 years. They know the ins and outs; they have the network and this stuff. We just pray that they continue to sleep. But the fear is that they wake up and when they wake up, they *[the customers]*

might go to GTBank accounts where you have an OLDCO and a now floating fintech arm or even within the bank you can now say there is a fintech arm like a business that is creating this stuff. So those guys will totally report to someone different so they will not be forced to be passed through the regulatory framework of the bank. This is true, yes.

The needs of the people in the hinterland are very basic, like super basic. They want to have access to their phones, they want safety, they want to be recognized, they want something that identifies them. Their needs are basic is not for you and I who have a smartphone, so I want the camera to be bulging, I want to be able to zoom and snap ten yards from here, like the needs of these people are kind of very basic. They're not looking for contactless stuff, they're not looking for "I can't my mask and unlock my phone". All those things are common with us. For them, they're just fine with something that is very basic. "Okay, fine. If I continue to keep my money with you, am I able to get access to credit some day?" "Yes, you can." "OK, rather than keep the money under my pillow, can I put a savings where I can earn a small interest so that someday I'm eligible to get one for my son to go to the university?" "Yes, it's possible." "Can I some day when have a wallet, can I have access to health care insurance?" "Yes, it's possible". "Can I also save into the future having micro and pension scheme where I can be putting money in and or the retirement fund?" "Yes, it's possible." Those guys their needs are very basic.

It is more about whether the sleeping giant, they will wake up some day. The central bank can also be rigid to favour them. What it means is the central bank can, as the governor of the central bank is always, always one of the former MDs *[managing director]* of the bank. It is always going to be their elder brother. They can just decide. The way the telcos have been kept out constantly. They can say "fintechs, you cannot offer this kind of service, again, only the banks." You can offer the service in conjunction with the bank. That means no matter how creative we get; we still need the right. So, the banks will continue to leverage here. Thanks.

Dustin: Yeah, very interesting. Overall, did this approach of thinking in alternatives, maybe even thinking the unthinkable, somehow stimulate your thinking about the future? Will you maybe also start to have a very long time horizon that you not only think five to seven years ahead, but start to think a little bit further?

Moses: For every now and then, you also want to keep, I'll tell you sincerely, the maximum is five years, the minimum are two years. Just to say we want to do X the next two years. Typical lookout

will be 24 months and maximum somewhat in five years. But there is one guy who is most important that sometimes we always don't remember. It is the regulator. The regulator is the principal who can come in and destruct. For people who don't know OPay, OPay started as a super app, and they wanted to do the bike. So OPay started not even as a payments company, they started as a super app where you have the bike-hailing kind of service, and the regulator came and said, "you cannot do bike-hailing". OPay employed over a thousand people, there were lots of people who were leveraging the bikes for you to transport and suddenly you can do that anymore. Or in December we woke up and we saw that the likes of TransferWise *[now: Wise]*, the people who leverage APIs to do remittances, as before now, the only way you can send money into Africa is either MoneyGram or Western Union, where I need to go to the physical bank branch to cash-out those monies. Fintechs like Flutterwave we came up with APIs working with Wise and some of the remittance companies where they were leveraging our API to terminate funds into wallet or bank accounts. In December 2020 the Central Bank said no, you must go back to the past, you must go back so no, you can't leverage those “Wise” kind of APIs. Another example is bitcoin. Cryptocurrency was very huge with young people in Nigeria. Three months ago, the central bank said nobody should offer this kind of service.

For all the big guys who have raised money, they want to come into this market: there is one guy you need to keep so when you are thinking of your ten-year plans, you must be conscious of what the regulation is. That's why sometimes you keep it as low as two years, just keep it a year and see what the regulator is saying. If you do five years and bring it out, they just come up and say, you are not permitted to do this stuff. So, you just find out that you need to bootstrap like you keep it very close. OK, we're happy today. Everything is going fine. You don't know when they will just come back and issue a new guideline someday.

Dustin: Yeah, very interesting the role of the regulator here. Thank you.

Anna-Sophie: Just a quick question. Do you think that being so dependent on the regulators, do you think that that's something that you see in a lot of other African countries, or is it more an issue concerning Nigeria?

Moses: I can tell you this, there are a lot of bad boys in Nigeria, so the regulators also must be tougher to stay ahead. So, I've always been in this system. We see the number of people who would have suffered from the bad guys in the system. The bad guys, I know the bad guys are everywhere, but we

have more bad guys than some other countries. It's only normal for the regulator to just continue to be very heavy just to protect the innocent part of the population. That's only one side.

Regulation has also helped us. I can just tell you two things, if you beat the traffic lights in Germany, nobody needs to pursue you. They just know that your plate number is registered to your home address or something, or maybe your credit card has gone blank, all under your social security. But in this place is not so. I can just create a company and defraud people and run away and there is no way you can track. It's only very important for the regulator to do what they do. But I know some African markets are kind of very easy because also the people maybe clean out sooner. Yeah, maybe in my life at Flutterwave where we've gone to different countries to incorporate, I think it's more strenuous in this site than in some of them.

The interviewers thank Moses for taking the time and for his kind cooperation.

End of the interview