

# Mobile Banking in Madagascar: Potential benefits and challenges

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## ABSTRACT

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The existence of mobile banking promotes financial inclusiveness and upgrades the financial literacy of individuals. Mobile banking has drastically grown in the decades in developed and developing nations. The rapid growth of technology and innovation has accelerated the rise of various types of products and services related to mobile money for users. In this work, we present additional information and provide a new insight about mobile banking in Madagascar, Africa. This paper aims to provide an overview of the potential benefits and challenges of adopting mobile banking. Understanding the current mobile banking issues contributes to advancing theory and scientific knowledge in banking and finance. In addition to the contribution of this work to the literature on mobile banking, this yields insightful and comprehensive expertise for the government, central banks, commercial banks, and other financial institutions in forming new strategies to improve the financial system and cope with technological advancement.

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### Keywords

Mobile Banking

Financial literacy

Inclusiveness

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## Introduction

### A. Background

Mobile banking such as mobile money and SMS banking, was introduced in Madagascar in 2010, according to the Agence Française de Développement 2014. The availability of mobile

banking increases the competitive advantage of businesses that leverage this financial innovation. This change potentially disrupted the financial and banking system in developing countries, particularly Madagascar. Nevertheless, telecommunication companies also offer financial services as those banks, including mobile money and SMS banking. Lately, they have issued new products such as credit and debit cards among the three telecommunication companies in Madagascar, namely Orange, Telma, and Airtel. Orange was the first to introduce mobile banking in Madagascar, namely Orange Money. The Orange money services include deposit service; withdrawal service, money transferring service, and bill-payment service. Well, mobile banking plays a vital role in shaping the financial landscape, creating opportunity, and improving financial inclusion.

The financial sector landscape has undergone significant changes due to the advancement in information technology and telecommunications [1]. These technological innovations have caused the existence of new financial products and services, such as mobile banking. Correspondingly, Mobile banking plays a crucial role in economic ecosystems, particularly in developing countries with a large financially excluded population. This mechanism offers an alternative means of accessing financial services and promoting inclusive finance [2]. Many countries around the globe have witnessed the advantage of the adoption of technology in financial services. These benefits are not only crucial for economic growth but also for the financial industry as a whole [3]. Moreover, the implication of digital technology in the financial sector has allowed banks and other financial institutions to reduce operational costs, optimize profitability, and improve overall efficiency [4]. This impact extends beyond the financial sector, to various industries such as transportation, health, infrastructure, and tourism leveraging the technology to develop new products and optimize their services.

The growing number of mobile phone users is considered one of the foundations of the popularity of mobile banking. Besides, the penetration and development of innovative digital technology accelerates the expansion of financial technology. This trend compelled banks and other financial institutions to be more creative to meet the market demand. Nevertheless, It is worth noting that particular challenges exist in terms of telecommunication development, technological accessibility, and literacy in some African countries. For example, Statista reported in 2019 that approximately 20 to 22 million individuals use smartphones in South Africa compared to its population of 58.09 million (Statista, 2019).

Similarly, in Madagascar, the number of mobile phone users is estimated to represent around 16.28 million, averaging 0.56 phones per person. Accordingly, although some African countries are committed to promoting digital inclusion and transformation, progress is still needed. Mobile phones/electronic gadgets are convenient and primarily used to perform banking transactions; having a mobile device is mandatory. The Business Tech in 2018 documented

that only about 43 percent of mobile phone owners engage in banking activity on their devices. Therefore, the proliferation of mobile phone usage has influenced the progress of mobile banking, and there are ongoing efforts to address technological accessibility challenges and promote digital inclusion in various countries [5].

The increasing number of mobile phone users played a significant role in the widespread adoption of mobile banking in numerous countries. Statista (2019) reports that the proportion of individuals using mobile devices to access the internet on the go in the European Union rose from 36 percent in 2012 to 69 percent in 2018. Likewise, in Asia, the internet penetration rate nearly doubled between 2011 and 2022, reaching approximately 67.4 percent (Statista, 2022). In African countries, such as South Africa, the presence of over 90 million mobile connections is notable, with an estimated 20 to 22 million people utilizing smartphones (Statista, 2019). However, despite this widespread mobile usage, only around 43% of the mobile population engages in some form of banking activity on their devices (Business Tech, 2018). Based on the existing data, which highlights the potential for mobile banking growth in regions with significant mobile phone penetration. However, promoting technological adoption and usage of mobile banking services among mobile device users is vital.

The acceleration of information technology is one of the leading causes of disruptive changes in the financial industry, known as financial technology Fintech [1]. In response to market trends and to cope with the dynamic competition, the financial services sector has adopted Fintech. The objective of this paper is to present an overview of the potential benefits and challenges faced by developing countries in the context of mobile banking. Besides, there are limited papers that discuss the relevant topics of mobile banking, specifically in the context of Sub-Saharan African countries. In doing so, this work aims to contribute to the enrichment of knowledge and literature in this context. Additionally, this work offers valuable insights for government entities, central banks, commercial banks, and other financial institutions in formulating new strategies to enhance the financial system, including its services and products.

## **B. Characteristics and instruments of Mobile Banking**

Mobile banking is an alternative channel that allows financial institutions to distribute services through mobile phones conveniently [6]. By definition, mobile banking refers to a wireless service that interlinks with a customer's bank account through a mobile application [7]. Typically, these applications are downloadable from virtual stores such as Google Play or the App Store [8]. Mobile banking allows users to engage in remote activities anytime, including transferring funds to other users, checking current balances, making online payments, and more. Besides, Previous studies [9] argue that mobile banking is an innovative service that provides financial and non-financial services through mobile phones.

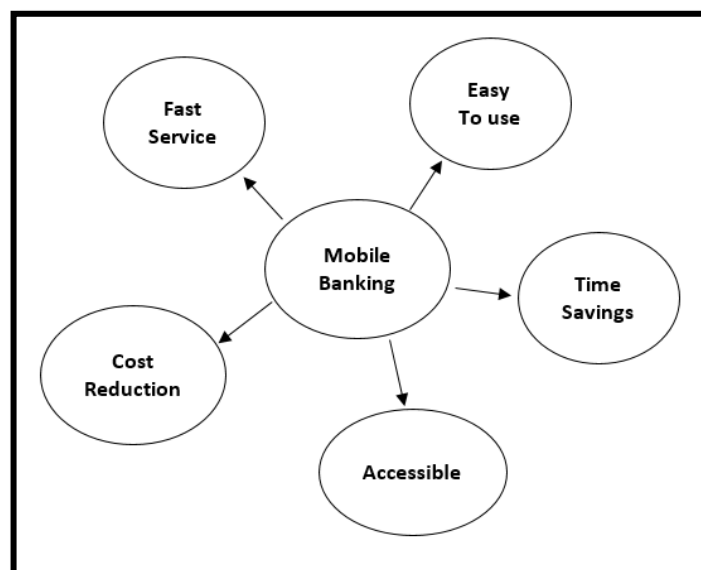
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*Title: Mobile Banking in Madagascar: Potential benefits and challenges (Sedera et al.)*

From a banking perspective, there are several approaches to implementing mobile banking. [10] argued that these types include (1) short messaging services (SMS banking) commonly observed in Africa Sub-Saharan, (2) wireless access protocol (WAP), (3) interactive voice response (IVR), Java, and (4) unstructured supplementary service data (USSD). A recent study highlights [11] that banking and mobile apps have emerged as additional mobile banking platforms. In recent years, Scholar [12] has classified mobile banking into three distinct categories as new forms of financial services. These categories include mobile banking services that involve downloadable apps. These mobile payment services can be accessed instantly and remotely through mobile wallets and mobile money services encompassing branchless banking, SMS banking, and money transfers.

Several prior empirical evidence identifies that the availability of mobile financial services varies across countries, depending on their economic levels. For example, the use of financial technology services and products including m-banking, e-wallet, online lending, is rapidly increasing in ASEAN countries [4]. However, the development of mobile financial services in African Sub-Saharan countries has been relatively slower [13]. SMS banking has emerged as the most widely used mobile financial service in countries like Cameroon, Kenya, and Madagascar [14], [15]. However, the key driving factors of financial technology adoption and growth varied across regions. [13] Further study concluded that several key factors drove the development and introduction of mobile money in developing countries, including Madagascar. These factors include infrastructure deficiencies, challenges in achieving financial inclusion that hinder the promotion of formal banking, and payment practices among the less privileged population, often referred to as the base of the pyramid.

Mobile banking is ubiquitous among the population, and the use of mobile banking is very familiar among customers. The reason for the rise of popularity is because in countries



where the rate of unbanked population is higher compared to those banked populations. Mobile banking is an alternative option to send and receive money between individuals, businesses, or entities. Some factors influencing the use of mobile banking here in Madagascar.

Source: Author, 2023

**Fig 1. Mobile banking usage**

The following section discusses the impact of mobile banking on socio-economics, and the next section contains the risks and challenges of mobile banking adoption. The last section of this paper presents the concluding remarks and suggestions.

## **Discussion**

### **A.The impact of mobile banking on socio-economics**

Although existing literature outlines that there are both advantages and disadvantages to the growth of mobile banking. This work examines the positive impact of mobile banking on the household, poverty, financial literacy, and inclusion.

Household income: [3] Mobile banking is one of the alternative channels to increase socio-economic development, particularly on an individual level. The determinants of poverty are often multidimensional, depending on the aspect. Besides, [16] literature underlined the association between mobile banking and poverty reduction in Cambodia. The findings stress that households that utilize mobile money tend to have higher household income per capita than those that do not use the services. Moreover, using mobile banking enlarges the household's possibility of receiving remittances. Similarly, the studies conducted in rural areas of Uganda [17], Niger [18], Kenya [19], and Zambia [20] conclude that money-transferring facilities can lift the poor population out of poverty, thereby improving household welfare and economic security as measured by per capita consumption expenditure, food insecurity, and asset ownership.

Poverty: Eradicating poverty is a significant challenge for the global economy, yet financial technology has a role in promoting financial inclusion [12]. The marginalized community, excluded from financial service facilities, faces challenges in their everyday lives. They find themselves trapped in deep poverty and social inequality due to the lack of available financial services and products in their community [21]. The rate of population excluded financially is higher in developing countries than in developed countries [22]. [23]The literature emphasizes that having access to financial service facilities can enrich the national economy and individual well-being, specifically for vulnerable populations. It allows them to

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integrate into the system economy, maintain their social development, and prepare for economic uncertainties such as economic crises [3]. Providing access to financial services for marginalized communities, which allows them to borrow, transfer, and make payments, ensures financial inclusion. Previous studies highlighted the essence of financial inclusion in poverty reduction [4]. Thus, the rise of mobile banking plays a role in ensuring financial inclusion as it enables customers in remote areas to access services and products inclusively.

**Financial Literacy:** Financial literacy is the practical utilization of fundamental financial concepts to manage one's financial resources effectively [24]. Financial literacy is one of the significant issues in developing countries, hindering economic growth [25]. [24] The study reported that the financial literacy rate for adults aged above 15 years old is 38% in Madagascar, 35% in Malawi, and 33% in Burkina Faso. They are assuming that this low rate results from limited years of education and a need for more access to formal financial services. Consequently, the introduction of mobile banking in the domestic market has revolutionized the financial industry and compelled local communities to embrace the latest technology. Hence, these new tools and services gradually upgrade the financial knowledge of the local population.

**Financial Inclusion:** Mobile banking services are the key elements of financial inclusion, given the importance of such programs in reducing the number of unbanked populations. According to the Ministry of Economy and Finance, Madagascar (2023), 29 % of adults have formal access to financial services. In addition, there is a considerable gap between the urban and rural areas regarding the degrees of inclusion. To increase availability and ensure accessibility to financial services to widespread nations. National governments across the African continent and countries worldwide take the initiative to facilitate and equip the entire population with financial services [26]. Geographic factors affect the low penetration of bank branches and services in rural areas, as some villages are inaccessible by cars. Indeed, the penetration of mobile banking provides virtual services for residents in remote areas. In doing so, the introduction of mobile banking is perceived as a game-changer in deepening financial inclusion, as it enables marginalized communities to engage in financial transactions, use safe and secure formal banking and payment channels, and enhance their understanding of mobile banking services. Since access to affordable financial services is a fundamental right for each individual.

## **B. Risks and Challenges of Mobile Banking**

The rapid changes in technology and financial services raise some challenges not only for financial institutions but for customers as well. In Sub-Saharan Africa, the primary concern in mobile banking includes legal system, cyber-attack, data privacy, and cost.

**Legal system:** legal system has become one of the main challenges of financial technology, particularly in the context of developing countries. The absence of a legal framework and solid financial measurement relentlessly supports its growth and adoption in developing nations. Besides, due to the inconsistent regulation concerning mobile banking, it has been available in the African 'market since the mid-2000s. Some companies and governments are delaying the adoption of Regtech solutions [27]. However, improving existing regulation technology would ameliorate customer experiences, save costs, and mitigate risk. In some cases, some countries have already adjusted their law and regulations according to the recent trend in technology: Kenya [28], Sub-Saharan Africa region [29], South Africa [38], and Nigeria [30]. Within the objective to protect the customer and financial system in general, but somehow, law enforcement is the obstacle.

**Cyber Attack:** Cybersecurity is a severe challenge in the modern data-driven world. Despite efforts to tackle cyber-attacks, the number of attacks continues to increase, posing a significant threat, especially to digital banking services. Cyber attack has become one of the obstacles to financial technology adoption, the consumer perception of the use of digital finance because consumers are primarily online hacking [14], [31]. [32] His study outlines that the speed of deploying new technologies surpasses the development of techniques for data security. This concern refers to information and educational campaigns that promote the safe and knowledgeable use of digital services. Especially in developing countries, the availability of human capital with the necessary skills to strengthen the digital system is limited [33]. The vulnerability of the financial system also presents opportunities for cybercrime. Cyber-attacks threaten the banking industry as a whole, not only in developing nations. Thus, to overcome and reduce the potential consequences of cyber-attacks, banks should regularly conduct security self-audits to identify and strengthen the weakest points in their systems [32].

**Privacy of personal data:** Customer privacy is defined as "the claim of individuals, groups, or institutions to determine for themselves when, how, and to what extent information about them is communicated to others" (Data-driven business and data privacy: Challenges and measures for product-based companies)[31]. Consumers elevate essential concerns with the leaking of their personal information in the digital world. Since most customers are aware of the danger of their data being leaked, this is not only concerning the customers but also concerning the institutions. Therefore, creating a system that enables the protection of the privacy of personal data is still challenging due to the need for more awareness and the insufficiency of digital talent that can assure personal data security.

**Digital literacy:** [34] The relevant study asserts that digital literacy among the population is significantly high in developing countries. Likewise, study shows that at least 50

percent of the adult population in African countries like Mauritius, Gabon, Tunisia, Sudan, and South Africa have access to the basics of digital literacy, while less than 10 percent of the adult population in Mali, Niger, and Madagascar [35]. The adoption of mobile banking in developing countries has potential challenges due to a lack of digital literacy, which is caused by the scarcity of technology infrastructure within these countries. Besides, the cost of owning a mobile phone or computer is high, particularly for a population that is mainly unemployed and lacks a stable source of income [16]. Those mentioned above are some of the obstacles that hinder the adoption of mobile banking. However, previous research highlights a need to train the human capital to acquire the skills following the latest technology. Previous study indicates that it is significant to invest in human resources, particularly in technology, such as engineers and data science [27].

Cost: Globalization pushes all sectors to become more efficient and effective in delivering and fulfilling customer needs [11]. However, the buying power of developing countries' population is relatively low. Generally, consumers need help regarding the costs of using financial technology products such as money transfers, cash withdrawals, and deposits, which come with fees [36]. Moreover, the transaction fees may discourage customers from using these services [4]. Additionally, the limited and underdeveloped technological infrastructure in these countries makes using these online financial services more expensive [29]. A previous study conducted in Sub-Saharan Africa [37] indicates that technological advancement and an inclusive financial system can potentially mitigate asymmetric information and transaction costs. As a result, this could affect the choices of individuals regarding investment decisions.

## **5. Concluding remarks and suggestions**

The "new age transaction" method that will challenge the global economy is financial technology, including mobile banking apps. Neglecting the implementation of novel technology in banking and financial systems would cause a challenge for the financial institution and slow the growth of their business. Indeed, if banks want to survive and be able to cope with the modern world, the adoption of new technology is vital. The paper highlights the significant role of mobile banking and the emergence of financial technology through financial institutions in socio-economic aspects. We identified the characteristics of mobile banking in developed and developing economies, examined their socio-economic impact, and explored the role of mobile banking in increasing the efficiency and stability of financial institutions. Lastly, we addressed the regulatory concerns and risks associated with adopting mobile banking in developing nations, as various factors still need improvement.



Mobile banking has become an increasingly important part of Madagascar's financial landscape; it provides a convenient and accessible way for people to manage their finances. The traditional methods of conducting financial activities have been replaced by mobile banking, enabling functions such as money transfers, payments, and bill payments. With continued growth expected in the coming years, mobile banking has the potential to play a significant role in driving financial inclusion and economic growth in the region and transform the financial industry ecosystem. Again, mobile banking serves as a driving factor for financial inclusion by making financial services more accessible to a broader range of people in widespread geographical locations. Despite some challenges, such as limited access to mobile phones and the Internet, It is expected that mobile banking will keep expanding in Madagascar. Furthermore, some obstacles must be overcome for mobile banking to reach its full potential, including greater financial literacy, digital literacy, and stakeholder collaboration.

In conclusion, mobile banking, which involves using mobile devices to access bank accounts and execute financial transactions, has become increasingly popular in recent years. However, its adoption by bank customers could be more consistent. Banks should prioritize the use of technology in financial services and products to reduce costs and optimize service quality and transparency while also enabling every individual and business to facilitate their activities through the broader availability of services and products.

### **Conflict of Interest**

The authors declare that there is no conflict of interest.

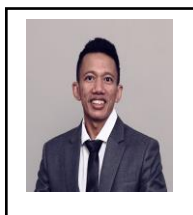
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