

Full Length Research Paper

The determinants and key challenges of financial inclusion in Niger: the case of Orange Money

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This work focuses on the mobile payments used in Africa, a means to help solve the financial inclusion problem on the continent. It builds on the unified theory of acceptance and use of technology (UTAUT). The results of the investigations on a sample of 238 subscribers of Orange Niger show that the facilitating conditions are as decisive as the development of solar batteries and smartphone democratization. Social influence, perceived usefulness and habits have little impact if not at all, and are consistent with the reality of the market. These results will enable telecom operators to refocus their deployment policies of the mobile payment service to enhance the financial inclusion.

Key words: Financial inclusion, mobile payment, ICT adoption, UTAUT, Africa.

INTRODUCTION

Today, nearly seven billion people in the world use mobile services; Africa is seen as the emerging continent where a fast ICT use expansion has developed exponentially the mobile telephony. In Niger, telecommunication services are provided by four operators licensed to establish and run telecommunication networks and services: Orange Niger, integrated operator (fixed and mobile), Niger Telecom, Atlantic telecom Niger and Celtel Niger. They are all operating in the mobile segment. The regulation of the telecommunication ecosystem is ensured by the Postal and Telecommunication Regulatory Authority (ARTP). ARTP is responsible for ensuring compliance with regulations. In 2017, 19,865,066 inhabitants of the Niger counted 114,352 fixed subscribers and 8,778,884 mobile users with a penetration rate of 40.88%

International Telecommunication Union, Country ICT data 2017).

In spite of a big number of the population, the banking rate remains low. Many of the African population have no access to formal financial services; around 20% households have a bank account, and in Niger, only 2.6%, making it one among the lowest penetration rates in the world depository institutions. This is explained by the "cash" paying habit, the abundance of informal transfers instead of opening accounts with formal financial institutions or relying on the microfinance companies. Thus, this state of affairs gives to the mobile operators an opportunity to create new revenue streams through the mobile payment services. However, there is uncertainty concerning usage models, the regulatory and political

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environment and a number of limitations on the use of mobile payment as:

- (1) A lack of public confidence;
- (2) A variety of dialects;
- (3) A high rate of illiteracy;
- (4) A high cost of infrastructure;
- (5) A lack of a tangible merchant ecosystem which would impose an everyday alternative to cash.

The purpose of this paper is to bring a well-researched framework of the use of mobile payment and regulatory situation in Niger through Orange Money (OM), as eWallet adaptation to the technology progress (Hamelin et al., 2001) offered by Orange Niger as a way of development enhancement. The first step is the review of the theoretical concepts essentially based on the unified theory of acceptance and use of technology (UTAUT) and the presentation of the conceptual model. Then after, the presentation of the methodology and the results of the experimentation on factors which influence the adoption of mobile payments in Niger will be presented. Finally, an analysis of the main managerial implications of this research, its limitations and perspectives will be done.

THEORETICAL CONCEPTS

Social psychology research

Social psychology investigation has determined that "the adoption of an attitude by a person is related to the intention of the individual to live by the concerned attitude" (Pybourdin, 2008). This postulation guided the research on the acceptance of new technologies by users. Various models (Baile, 2005) like Technology Acceptance Model (TAM), Theory of Reasoned Action (TRA), Theory of Planned Behavior (TPB), Diffusion of Innovation Theory (DIT), Task-Technology Fit (TTF) model, and recently Unified Theory of Acceptance and Use of Technology (UTAUT) (Dulle and Minishi-Majanja, 2011; Jawadi, 2014) identified the factors that influence the intentions or the actual use of technology tools.

Assumptions and constructs of the study

According to the previous reflections borrowed from literature, 6 assumptions were made:

Hypothesis 1: "The perceived utility has a positive effect on the use of Orange Money" will allow to measure how the use of updated technology tools can improve the user's performance (Bourdon and Hollet-Haudebert, 2009; Davis et al., 1989; Venkatesh et al., 2003, 2012). Thus, the more positive the perceived benefit of the customer is, the more he will use this technology tool.

Hypothesis 2: "The perceived ease of using Orange Money has a positive effect on its use" will make it possible to measure how the use of technology tools is effortless for the user (Jawabi, 2014; Venkatesh et al., 2003, 2012). An easily usable application is more likely to be accepted by people.

Hypothesis 3: "Social influence has a positive effect on the acceptance of the use of Orange Money" will make it possible to measure changes in perceptions, opinions or judgments observable at the level of individuals, changes brought in by the knowledge of opinions, perceptions or judgments, and other individuals (Davis et al., 1989; Venkatesh et al., 2003, 2012).

Hypothesis 4: "Clear and easy conditions have a positive effect on the use of Orange Money" will measure the level to which an individual believes there is an organizational and technical infrastructure to guarantee the use of the system (Venkatesh et al., 2003, 2012).

Hypothesis 5: "Habit has a positive effect on the use of Orange Money" will allow measuring the tendency of individuals to automatically perform behavior due to information (Venkatesh et al., 2003). In this sense the fact of receiving money often by Orange Money encourages the beneficiaries to use it.

Hypothesis 6: "The use of Orange Money promotes access to financial services" will measure the actual use of the system and behaviors (Davis et al., 1989; Graillet, 1998). In this sense the use of Orange Money promotes financial inclusion.

RESEARCH DESIGN

Figure 1 shows the conceptual model underlying the research, composed of seven constructs and six hypotheses.

METHODOLOGY

To test these hypotheses, we used a hypothetical-deductive approach. A questionnaire was submitted to a sample of 238 people living with a mobile phone (Appendix A). Among them were 67.65% men and 32.35% women, aged between 25 and 45 of 66.39% (Appendix B).

Contents of the study survey

The questions focused on:

- (i) The main factors determining the use of mobile payment adapted from the work of Venkatesh (Venkatesh et al., 2012) on the adoption and use of technology services;
- (ii) A measure of interest and adoption of mobile payment;
- (iii) The main services (voice, sms, beep, mobile payment, mobile internet) frequently used on a likert scale from 1 to 5, look like: Strongly agree - Agree - No opinion - Disagree - Strongly disagree;
- (iv) A three-item scale of perceived utility;
- (v) A three-item scale on social influence;
- (vi) A measure of facilitating condition, ease of use and usage of mobile payment;

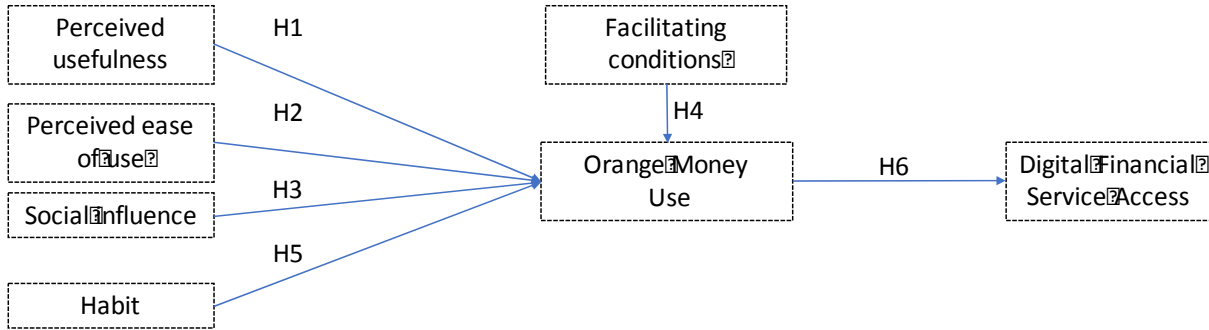


Figure 1. Research design.
Source: Author.

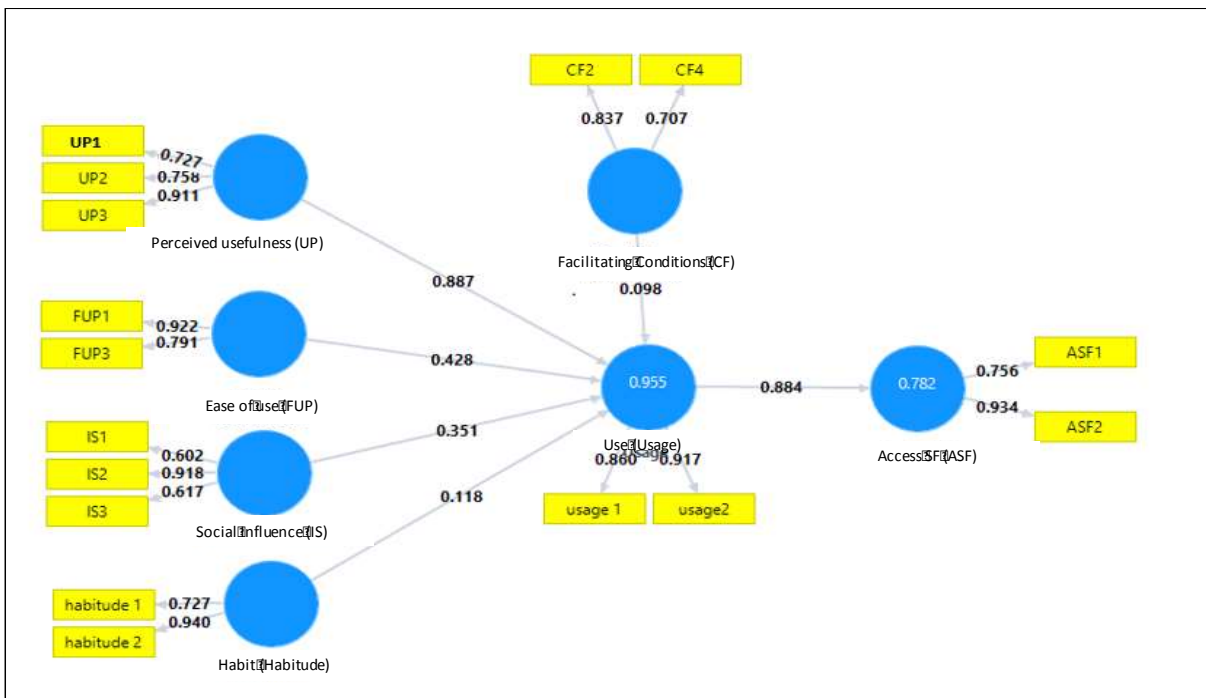


Figure 2. Assumptions with manifest variables.
Source: Results of the smart PLS software.

(vii) Socio-demographic characteristics of respondents.

The Smart PLS 2.0M3 software was used for correlation analysis, item or construct reliability testing, and hypothesis testing (DeLone and McLean, 1992) (Appendixes C and D).

Main results

After checking the psychometric qualities of our measuring instrument, we carried out the verification of our hypotheses by the variables (path coefficient), their level of significance and the critical ratios of the structural coefficients corresponding to the T test and must be greater than 1.96 (Figure 2). Table 1 presents the parameter estimate of the causal model using the method Bootstrap.

Results

Effect of perceived usefulness of the use of Orange Money (H1)

(i) The perceived usefulness has little impact on Orange Money users because of not knowing the worth of the service envisioned. They only worried about the safety and the discretion of the payments; some do not perceive the value of a use in relation to "cash" and card transactions.

(ii) This can be explained by a misunderstanding or negligence of the publicity made by operators while

Table 1. The parameter estimate of the causal model using the method Bootstrap.

	Original sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics	P-value
Facilitating Conditions -> Usage	0.616	0.618	0.071	8.717	0.000 ****
Social Influence -> Usage	0.421	0.421	0.077	5.464	0.000 ****
Ease of use -> Usage	0.381	0.201	0.132	1.741	0.005 *
Perceived Usefulness -> Usage	-0.038	-0.019	0.427	0.09	0.928
Usage -> Digital Financial Service Access	0.589	0.595	0.053	11.171	0.000 ****

Source: Results of the smart PLS software.

making known the services they offer (Pope and, Martin, 2010).

(iii) This result corroborates the reality in Niger (Baron et al., 2015). Many among the Niger's population do not believe in the dematerialization of payment methods and have more confidence in the use of visible and tangible "cash". The usefulness perceived negatively influences the attitude of use and thus H1 is rejected.

Effect of perceived ease of use of Orange Money (H2)

(i) The Flexibility of Orange Money allows users to choose the times and convenient places for cash withdrawal. If the use of mobile payment requires complex learning, this can create barriers to its adoption (Chaix, 2013; Guiderdoni-Jourdain, 2009). However, the absence of technical problems in the use of the service encourages the widespread use of Orange Money.

(ii) This leads us to conclude that the ease of use of Orange Money encourages greater use of the service and that confirms H2. The facility perceived positive influences the use of OM.

Effect of social influence on the use of Orange Money (H3)

Social influence is the extent to which consumers perceive others (family and friends) and believe they should use Orange Money. The Nigerien population attaches importance to their peers such as religious and traditional leaders (Komlavi Hahonou, 2002; Meunier, 1998) who often play the role of prescribers in the choice of technology industry. The social influence here has an impact on OM use which allows us to confirm H3.

Effect facilitator's requirements on the use of Orange Money (H4)

Solar chargers and popularization of cheap smartphones in Niger confirm this trend (Creti, 2014). However, the lack of identification can be a handicap especially for rural area

customers (Tcheng et al., 2010). The operator seems to have involved this by offering Orange Money to his subscribers without integrating this legal constraint. H4 thus confirmed.

Effect of habit on the use of Orange Money (H5)

The lack of familiarity with this new way of payment and the ability of Nigeriens to cope with the technology, knowing the low level of literacy of the population are the main arguments and potential barriers to the expansion of mobile payment. The practice has a negative influence on the use of mobile payment. Thus, the habit in our sample does not appear to be decisive. H5 is thus rejected.

Effect of mobile payment use on the access to digital financial services access (H6)

A study by the Department for International Development of Great Britain showed that the mobile payment open access to Digital Financial Services at a lower cost. In Niger, banks are only present in the capital Niamey and in some major cities such as Zander, Marabi, Tessaoua, etc. Rural area is not well served while almost 80% of the population lives there. The Orange mobile network is an alternative and a powerful relay because it has offices even in the villages (Chéneau-Loquay, 2010). Orange Money users can carry out financial transactions 24/7 without recourse to a bank account. The money transfers and bill payments are possible through this service. Orange Money acts as a mobile electronic portfolio providing access to Digital Financial Services at lower cost allowing us to confirm H6.

DISCUSSION

This study shows the determinant factors of the use of mobile payments in the context of developing countries. In this research, the facilitating conditions are found to be more explanatory than social influence regarding their impact on the use of Orange Money. The main aspect of

Table 2. Results of assumptions.

Hypothesis	Dimensions and authors	Authors	Statutes
H1: The perceived utility exercises positive effect on the use of Orange Money	Well being Profitability Efficiency Benefits	Venkatesh et al. (2003, 2012)	Rejected
H2: Orange Money's perceived ease of use has a positive effect on its use	Expected effort Accessibility Mobility	Venkatesh et al. (2003, 2012)	Confirmed
H3: Social influence has a positive effect on the use of Orange Money	Social Link Identity Sociability	Venkatesh et al. (2012)	
H4: Facilitating conditions have a positive effect on the use of Orange Money	Infrastructure Organizational and technical	Venkatesh et al. (2003, 2012)	Confirmed
H5: Habit has a positive effect on the use of Orange Money	Previous behavior learning Automatism	Venkatesh et al. (2012)	Rejected Confirmed
H6: Use of Orange Money promotes access to Digital financial services	Employment Using	Venkatesh et al. (2012)	Confirmed

Source: Author.

the facilitating conditions is probably the smartphone sold less than 60 euros in Niger. The extension of terminals compatible with the services is one of the success factors of Orange Money. The easy to use of the service turns out to be one of the least important factors but still exerts a positive influence on the use of Orange Money. Regarding the perceived usefulness and habit, their impacts are negative and this is in line with the market reality; they are not used regarding the mobile payments. In view of the theory and of our results, the use of Orange Money promotes access to Digital Financial Services cost 24/7 (Table 2 Results of assumptions).

Managerial implications and perspectives

The results of this research can help telecommunication operators in the development of their strategy and guide regulatory authorities in the governance of the market.

For telecommunications operators:

The users do not perceive the usefulness of the mobile payment for several reasons: First, they have a strong attachment to the cash. Secondly, the target population does not see an interest in other payment solutions, such

as transfers of cash by Microfinance Institutions or card transactions. Mobile payments have not yet entered into the habit of Nigeriens. They still need to be convinced to use it.

To make mobile payment a vector among others for the development of banking in Niger, telecommunication operators should implement a mechanism for awareness and training of their target. A study on the Transfers of Silver in Niger confirms this trend (Creti, 2014). Social influence plays a decisive role on the use of mobile money transfers (Eckhardt et al., 2009). Thus, the weight of society, the religion and tradition can be components of the operators' marketing strategies. The low familiarity with this new means of payment and the ability of Nigeriens to cope with the technology knowing the low level of literacy of the population are arguments and potential barriers to the expansion of mobile payment. Operators could deploy field agents to advise and assist users. These same agents could ensure awareness and learning of targets (Van, 2005). The democratization of cheap smartphones and solar chargers in Niger should be supported by the operator. A tax exemption of terminals as is the case in Ivory Cost and Senegal should encourage the use of mobile payment in Niger. It is up to the operators to approach the public authorities for that purpose for the time being.

The results showed that if operators want to play their role in the development of banking services, they must stimulate people through remote payments (mobile payments of water and Electricity bills) and proximity (purchase in store). In the short and medium terms, agreements with public services (water, electricity), health centers, schools, restaurants, hotels, post office networks, petrol stations, banks and/or decentralized financial systems to accept mobile payments and make it accessible throughout the country. As Niger is characterized by the mobility of its population (nomadic Fulani), physical remoteness represents an opportunity for long-term international transfers of funds. Dispersion and mobility often go beyond national borders (Burkina Faso, Ivory Coast, Mali, Chad and Nigeria). Operators should offer the same solutions as international money transfer companies (Western union, Ria, money gram, etc.). Finally, operators must work to improve the quality and coverage of their networks according to the requirements of their specifications.

For regulation authorities and public authorities

Mobile payments cover a much broad spectrum, particularly in terms of regulations: Telecommunications, Information Technology, digital financial services and consumer protection. Regulators will need to work in synergy to identify the payment landscape in its entirety and redistribute roles and responsibilities accordingly and redefine new policies for universal service development by integrating financial inclusion (Zins and Weill, 2016). Regulatory efforts appear to be concentrated in large cities, while most consumers from secondary cities and rural areas struggle to access telecommunications services. It is necessary to decentralize regulatory activities to bring the regulator closer to users.

CONCLUSION AND RESEARCH PERSPECTIVES

This research is not limitless. A qualitative study would have enabled us to identify the variables that influence the use behavior for mobile payments. Given the competition and the lack of data on the subject, it seemed appropriate to identify the determinants of access to financial services through Orange Money. Thus, we did not study the behavior of the subscribers or other operators providing the same service. We did not, either integrate in our study professional users. This opens up a future research perspective to integrate small and medium-sized enterprises, especially as wages in some companies are paid through mobile phone.

It would be interesting to implement this model in countries where the operator Orange is operating (Mali, Senegal, Ivory Coast, Cameroon, etc.) to allow it to assess the robustness of the model and the possibility of its popularization. Second, given the dematerialization

policy adopted by some African governments, it would be interesting to use Orange Money conceptual model to apply it to contactless payment Near-field communication (NFC) and barcode Quick Response (QR). This would help determine the history of the intent to use and the use of contactless payments NFC and the QR barcode, which tends to predominate because of the smartphone penetration rate continues to grow in Africa.

CONFLICT OF INTERESTS

The author has not declared any conflict of interests.

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Appendices

Appendix A. Questionnaire Items

Utility perceived (UP) (adapted from Venkatesh et al. 2012)

UP1: I think Orange Money is useful.

UP2: The Orange Money service improves my payment efficiency.

UP3: The Orange Money service allows me to make payments faster.

Perceived Ease of Use (FUP) (adapted from Venkatesh et al. 2012)

FUP1: I find that using the Orange Money service is easy.

FUP2: Learning how to use the Orange Money service is easy for me.

Social Influence (IS) (adapted from Venkatesh et al. 2012)

IS1: People who influence my behavior think I should use the Orange Money service

IS2: These people who are important to me think I should use the Orange Money service

IS3 : I use Orange Money because my family and friends think it helps to consolidate our links.

Habit (Habit) (adapted from Venkatesh et al. 2012).

Habit 1: The use of Orange Money has become spontaneous for me, I cannot do without.

Habit 2: I am familiar with the use of Mobile Banking services

Facilitating Conditions (CF) (adapted from Venkatesh et al. 2012)

CF1: I have the necessary resources (Smartphone and solar charger) to use the Orange Money service.

CF2: I have the knowledge to use the Orange Money service.

CF3: If I encounter difficulties in the use of Orange Money, there will be professionals to help me.

Use of Orange Money (USAGE) (adapted from Venkatesh et al. 2012)

USAGE 1: I often use Orange Money to send and receive money.

USAGE 2: I often use Orange Money to make merchant payments.

Appendix B. Socio-demographic characteristics of respondents.

Gender and Age					
		Numbers	Percentage	Percentage valid	Cumulative percentage
Valid	Female	101	42.44	42.44	42.44
	Male	137	57.56	57.56	100.00
Age groups					
		Numbers	Percentage	Percentage valid	Cumulative percentage
Valid	15-24 years	57	23.95	23.95	23.95
	25-45 years	158	66.39	66.39	90.34
	More than 45	23	9.66	9.66	100.00
Socio-professional category					
		Numbers	Percentage	Percentage valid	Cumulative percentage
Valid	Student	65	27.31	27.31	27.31
	Official	116	48.74	48.74	76.05
	Unemployed	15	6.30	6.30	82.35
	Retirement	10	4.20	4.20	86.55
	Other	32	13.45	13.45	100.00
	Total population	238	100%	100%	100%

Appendix C. Evaluation of reliability and validity.

Dimensions	Composite reliability	Cronbach alpha	AVE
Acc degree in SF	0.84	0.83	0.72
Facilitating Conditions	0.77	0.76	0.71
É ease of use	0.85	0.90	0.72
Habit	0.77	0.69	0.61
Social Influence	0.82	0.82	0.72
Use	0.88	0.87	0.77

Source: Results of the smart PLS software.

Appendix D. Correlation between the built and assessing discriminant validity.

Constructed	Access SF	Facilitating Conditions	Ease of use	Habit	Social Influence	Use	Perceived usefulness
Access SF	0.85						
Facilitating Conditions	0.25	0.84					
Ease of use	0.46	0.17	0.85				
Habit	0.55	0.1	0.56	0.78			
Social Influence	0.62	0.09	0.79	0.76	0.85		
Use	0.65	0.22	0.57	0.66	0.68	0.88	
Perceived usefulness	0.29	0.37	0.15	0.16	0.15	0.26	0.91

Source : Results from our survey (smart software PLS).