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M-Commerce Implementation in Nigeria: Trends and Issues

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Abstract

Nigeria was described as the fastest growing telecoms nation in Africa and the third in the World. The country had experienced a phenomenal growth from a teledensity of 0.49 in 2000 to 25.22 in 2007. This trend has brought about a monumental development in the major sectors of the economy, such as banking, telecoms and commerce in general.

This paper presents the level of adoption of ICT in the banking sector and investigates the prospects of m-Commerce in Nigeria based on strengths, weaknesses, opportunities and threats (SWOT) analysis.

Findings revealed that all banks in Nigeria offer e-Banking services and about 52% of the offer some forms of m-Banking services. The banks and the telecoms operators have enormous potentials and opportunities for m-Commerce but the level of patronage, quality of cell phones, lack of basic infrastructure and security issues pose a major threat to its wide scale implementation.

Keyword: m-Commerce, e-Banking, m-Banking, m-Business, m-Payment, e-Commerce and SWOT.

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INTRODUCTION

m-Commerce is often referred to as mobile e-Commerce. It refers to all business transactions that are conducted on the platform of mobile devices and wireless networks. UNCTAD (2002) presents m-Commerce as buying and selling of goods and services using wireless hand-held devices.

Currently, there exists a number of wireless technologies and standards such as Bluetooth, 902.11, infrared, radio frequency identification (RFID) and contactless chips that offer transmission of transactions data from mobile devices to a POS terminal without swiping a card reader (m-Payment Forum, 2002). These have helped to offer seamless transactions as well as offering “anytime” and “anywhere” services.

m-Banking is equally referred to as mobile e-Banking. It is defined as the newest channel in electronic banking that provides a convenient way of performing banking transactions, which is also known as “pocket-banking”. Tiwari et al (2007), presents m-Banking as the provision and availment of banking and financial services with the help of mobile telecommunication devices.

The major distinction between the electronic and mobile business transaction prefixed as “e” and “m” is that the electronic medium offers “anytime access”, while mobile medium offers “anytime and anywhere access” to business processes respectively (Tiwari et al, 2006). While an electronic transaction is limited to computer networks that are stationary, mobile transactions refer to computer networks that may support both stationary and wireless connections. m-Commerce features are listed as ubiquity, immediacy, real-time, localization (localized contents using a global positioning system (GPS)), pro-active functionality (through SMS), and simple authentication procedure (based on a subscriber identification module (SIM) and personal identification number (PIN) (Buse, 2002).

The rest of the paper is arranged as follows: the first section begins with a survey of related literature and a review of e-Banking services in Nigeria; the second and third section presents the objectives of research and the research instruments respectively; the next section discusses the research findings. Finally, the conclusion of the paper is presented.

SURVEY OF RELATED LITERATURE

Chiemeke et al (2006) conducted an empirical investigation on adoption of Internet banking in Nigeria. The study identified the major inhibiting factors to Internet banking adoption in Nigeria such as, insecurity, inadequate operational facilities including telecommunications facilities and electricity supply, and made recommendations on how Nigeria banks can narrow the digital divide. Also, the report revealed that Internet banking is being offered at the basic level of interactivity with most of the banks having mainly information sites and providing little Internet transactional services.

Similarly, Agboola (2006) investigated electronic payment systems and tele-banking services in Nigeria. The findings revealed that there has been a very modest move away from cash. Payments are now being automated and absolute volumes of cash transactions have declined. The result of the study revealed that tele-banking is capable of broadening the customer relationship, retain customer’s loyalty and enable banks to gain commanding height of market share if their attendant problems such as, ineffectiveness of telecommunications services, epileptic supply of power, high cost, fear of fraudulent

practices and lack of facilities necessary for their operation were taken care of.

Ayo (2006) investigated the prospects of e-Commerce in Nigeria based on ability, motivation and opportunities (AMO) model and observed that virtually all companies in Nigeria have online presence. The paper reported the motivation and opportunities for e-Commerce as low based on lack of e-Payment infrastructure and access to ICT facilities.

Also, in an empirical assessment of customer acceptance of m-Commerce carried out in Germany, and reported by Buse and Tieari (2006) as follows:

- The highest mobile users are top management, followed by self employed, salaried class, students and others. Government employees were found not to patronize mobile banking.
- The most favoured reason for carrying out mobile banking is ubiquity, next is overview of bank account, followed by immediacy.
- The highest fear of customers about mobile banking is that of insecurity, next is cost, and uncomfotability.

Review of e-Banking Services in Nigeria

Table 1 presents the current e-Banking services in Nigeria. Virtually all the 25 banks that survived the recent recapitalization exercise engage the use of ICT as a platform for effective and efficient delivery of banking services. Consequently, electronic cards, Internet banking and mobile banking services are gradually being introduced. However, m-Banking activities are limited to mobile finance information, download or ringing tones and music as well as telematic services, particularly, vehicle tracking, theft protection and emergency services.

S/N	Bank Name	E-Banking Services	Internet Baking Services	M-Banking Services
1	Access Bank	<ul style="list-style-type: none"> • Access ValueCard • Mpower Credit Card • Visa International • Access Visa V Pay • AccessCard Debit 	<ul style="list-style-type: none"> • Funds Transfer 	Web2SMS
2	AfriBank Nigeria Plc	<ul style="list-style-type: none"> • AfriBank ValuCard • AfriCash (ATM card) • AfriBank Cash Evacuation Scheme (ACES) 	<ul style="list-style-type: none"> • AfriBank Cash Express • AfriBank e-courier • AfriBank e-registration • AfriBank e-learning 	AfriBank m-banking
3	Bank PHB (PlatinumHabib Bank Ltd)	<ul style="list-style-type: none"> • Black card • Bank PHB ValuCard • Bank-PHB Telephone Banking Services 	<ul style="list-style-type: none"> • Bank PHB-TNS (Transaction Notification Service) 	
4	Diamond Bank Plc	<ul style="list-style-type: none"> • Diamond ValuCard • Diamond Commercial Banking • Diamond Personal Baking • Diamond Corporate Banking 	<ul style="list-style-type: none"> • Diamond Trade tracker • Diamond Dial Account • Diamond Online • Diamond Any Time Money • Diamond Connect 	Diamond Mobile
5	Ecobank Nigeria Plc	<ul style="list-style-type: none"> • Ecobank Regional Card • Ecobank Visa Electron Card • Ecobank MasterCard • Western Union Money Transfer 	<ul style="list-style-type: none"> • Ecobank Internet Banking 	
6	Equitorial Trust Bank	<ul style="list-style-type: none"> • ETB MoneyGram 	<ul style="list-style-type: none"> • ETB WorldNet 	ETB Glo M-Banking
7	Fidelity Bank Plc	<ul style="list-style-type: none"> • Bank@Home 	<ul style="list-style-type: none"> • Fidelity i-Banking 	Fidelity Mobile
8	First Bank Nigeria Plc	<ul style="list-style-type: none"> • FirstCash Card • First Bank – ValuCard • GloFirst Cash Card • V-pay Card • First Bank-MasterCard • Western Union Money Transfer 	<ul style="list-style-type: none"> • First Bank U-First • First Bank- Electronic Payment Solution • First Bank – Alert banking services 	First Bank – Glo M-Banking
9	First City Monument Bank Plc	<ul style="list-style-type: none"> • Debit/ATM Cards 	<ul style="list-style-type: none"> • Western Union Money Transfer 	
10	First Inland Bank Plc	<ul style="list-style-type: none"> • FlashMeCash • Blackcard (ATM) 	<ul style="list-style-type: none"> • i-pay (Internet Payment) • Wesmaster • Bank Away 	
11	Guaranty Trust Bank Plc	<ul style="list-style-type: none"> • GTB ATM card • GTB MasterCard 	<ul style="list-style-type: none"> • GTB Western Union Money Transfer 	Web2SMS SMS banking

		<ul style="list-style-type: none"> • GTB ValuCard • GTB e-Tranzact scheme payment system • GTB Funds in Transit • GTB GAPS • GTB Batch Payment • GTB Cheque writer • GTB Paydirect 	<ul style="list-style-type: none"> • GTB AutoPay • GTB Electronic Notification Services • GTB Automated InterBank Services • GTB Book – Fly-Pay-Easy • GTB GeNS • GTB Internet Banking • GTB WebPay 	
12	IBTC- Chartered Bank Plc	<ul style="list-style-type: none"> • IBTC ATM Card • IBTC Telephone Banking 	<ul style="list-style-type: none"> • IBTC Chartered Online • Stock Broking • Funds Management • Mutual Funds 	
13	Intercontinental Bank Plc	<ul style="list-style-type: none"> • Direct: MasterCard • Direct: MaestroCard • Direct: Instant cash • Direct: e-Tranzact • Access Control/ Identification Card/ Electronic Purse • Electronic Ticketing 	<ul style="list-style-type: none"> • Internet Banking • i-Bursary • i-Salary • V-Pay • Eduportal • E-Visa payment solution • IGR- E-government payment solution 	SMS Banking
14	Nigeria International Bank Ltd (Citigroup)	<ul style="list-style-type: none"> • Citi credit cards • Diner Club • Citi Commercial cards • Small Business credit cards • Credit card merchant services 	<ul style="list-style-type: none"> • Online Bill Payment • Online Trading • Electronic Accounts • Online Banking • Online Account Aggregation 	Banking wireless services
15	Oceanic Bank International Nig. Ltd	<ul style="list-style-type: none"> • Oceanic ATM card • Oceanic Credit Card 	<ul style="list-style-type: none"> • Online Product Order • E-Registration • Western Union Money Transfer • E-Ticketing Solution 	Mobile Banking Product
16	Skye Bank Nig. Ltd.	<ul style="list-style-type: none"> • e-Tranzact payment scheme • ValuCard • Skye Card 	<ul style="list-style-type: none"> • Skye Plus 	Skye Plus
17	Spring Bank Nig. Ltd.	<ul style="list-style-type: none"> • Virtual Money • Campus Xpress 	<ul style="list-style-type: none"> • Online bills payment • Spring Connect • Transaction Notification 	
18	Stanbic Bank Nig. Ltd.	<ul style="list-style-type: none"> • Credit/Debit Card 	<ul style="list-style-type: none"> • Electronic Accounts 	
19	Standard Chartered Bank Nig. Ltd.	<ul style="list-style-type: none"> • Moneylink (local) • Visa business • Visa electron • Visa platinum 	Web Bank	
20	Sterling Bank Nig. Ltd.	<ul style="list-style-type: none"> • Western Union Transfer 	Sterling i-Banking	

		<ul style="list-style-type: none"> • POS Payment • Sterling Telephone Banking • PC Banking 		
21	Union Bank Nig. Ltd.	<ul style="list-style-type: none"> • Union Bank ATM Card • Money Line (cash master) • Stallion Money Transfer • ValuCard/Easy cash • Union Telephone Banking 	<ul style="list-style-type: none"> • Western Union Money Transfer 	Union Mobile Banking
22	Unity Bank Nig. Ltd.	<ul style="list-style-type: none"> • MasterCard/Visa card loan • ATM Card 	<ul style="list-style-type: none"> • Western Union Money Transfer • Unity Bank Electronic Funds Transfer 	
23	United Bank for Africa Plc. (UBA)	<ul style="list-style-type: none"> • UBA MasterCard • UBA MoneyGram 	<ul style="list-style-type: none"> • U-Direct 	
24	Wema Bank Plc	<ul style="list-style-type: none"> • Wema ATM Card • Wema ValuCard 	<ul style="list-style-type: none"> • Wema Internet Banking • Online Banking 	Wema Mobile Banking
25	Zenith Bank Plc	<ul style="list-style-type: none"> • Zenith Bank EasyCard • Zenith Bank MasterCard • Zenith Bank ValuCard • Zenith Bank WebSurfer • ATM salary solution • Automated cheque writing • Reconciliation tool 	<ul style="list-style-type: none"> • Zenith Bank Western Union Money Transfer • Zenith Bank Internet Banking • Automated Direct Payment System • Swift pay • Easy pay for merchants • Online bills payment 	Zenith Bank Mobile Banking

Table 1: Electronic Banking Products and Services in Nigeria
Source [web sites of all the banks]

MOBILE COMMERCE APPLICATIONS

Commercial applications that were hitherto offered on the electronic medium of business transaction are currently been deployed on the mobile platform. The monumental growth of mobile devices all over the world, with over one-third of the world population having access to it has given prominence to m-Commerce (Charles, et al, 2007).

Some mobile applications as presented in Tiwari et al (2006) are modified as follows:

1. Mobile Banking (m-Banking)
 - Mobile Accounting
 - Mobile Brokerage
 - Mobile Financial Information

2. Mobile Entertainment (m-Entertainment)
 - Mobile Gaming
 - Downloads (music and ring tones)
 - Downloads (video and digital images)
 - Location-based Entertainment Service

3. Mobile Information Services
 - Current Affairs
 - Travel Information
 - Tracking Services
 - Mobile Search Engines and Directives
 - Mobile Offices

4. Mobile Marketing (m-Marketing)
 - Mobile Couponing
 - Direct Marketing
 - Mobile Newsletters
 - Organization of Mobile Events

5. Mobile Shopping (m-Shopping)
 - Mobile Purchasing of goods

6. Mobile Ticketing (m-Ticketing)
 - Public Transport
 - Sport and Cultural Events
 - Air and Rail Ticketing
 - Mobile Parking

7. Mobile Health (m-Health)
 - m-Diagnosis
 - m-Prescription
 - m-Referencing
 - m-Appointment

8. Mobile Payment (m-Payment)
 - m-Purse
 - m-wallet

- Micro payment
 - Macro payment
9. Telematics Services
- Remote Diagnosis and maintenance of Vehicles
 - Navigation Services
 - Vehicle Tracking and Theft Protection
 - Emergency Services

OBJECTIVES OF RESEARCH

The primary objectives of this research are to investigate the level of ICT adoption in the banking sector and the prospects of m-Commerce implementation in Nigeria based on the SWOT analysis.

RESEARCH INSTRUMENTS

The SWOT Analysis

SWOT analysis presents a simple framework for generating strategic alternatives from situation analysis. It stands for strengths, weaknesses, opportunities and threats. It is particularly well-suited for addressing complex strategic situations within a very limited time frame (NetMBA, 2006).

The situation analysis addressed by SWOT is categorized into two, namely: Internal and External Analyses. While strengths and weaknesses are classified as internal, opportunities and threats are classified as external. Therefore, through SWOT, organizations can leverage their strengths, correct their weaknesses, capitalize on golden opportunities and develop strategies to reduce potential threats (Mycoted, 2006).

Thus, under strength, we investigated: available services and level of access; and under weaknesses, we investigated: patronage of mobile and SMS banking as well as their features. Similarly, for external analysis, under opportunities, we considered: the available mobile phones and types, access to web services; and under threats, we consider: quality of service, available infrastructure and security.

Survey Tools

Two research tools were employed. The first is an exploratory research based on secondary data obtained through the Net. The available 25 banks in Nigeria were consulted through the Internet to peruse the available services and the available information is presented in table 1. Similarly, the sites of the three (3) major telecoms operators in Nigeria were consulted and our findings are presented in table 2.

Secondly, Survey questionnaire was administered to empirically assess the level of adoption of m-Commerce in Nigeria. A total of six hundred (600) questionnaires were randomly administered to business men, bankers, academics, students, and the general public. Five hundred and seventy-six (576) were returned, which represents 96% of the total respondents. Pertinent questions such as availability of mobile phones and types, web access through the phones, safety issues and convenience of banking, patronage of mobile services as well as major threats to m-banking were

asked. The collected data were analysed based on descriptive statistics using the statistical package for social sciences (SPSS).

ANALYSIS OF RESULT

Biodata of Respondents

Gender			
		Frequency	Percent
Valid	Male	346	60.1
	Female	219	38.0
	Total	565	98.1
Missing	System	11	1.9
Total		576	100.0

Age			
		Frequency	Percent
Valid	21-30	133	23.1
	31-40	172	29.9
	41-50	174	30.2
	above 50	76	13.2
	Total	555	96.4
Missing	System	21	3.6
Total		576	100.0

Educational Background			
		Frequency	Percent
Valid	ND/NCE	88	15.3
	HND/B.Sc	255	44.3
	Higher Degree	192	33.3
	Total	535	92.9
Missing	System	41	7.1
Total		576	100.0

Table 2: Gender, Age and Educational Background of Respondents

Discussion

60.1% of 576 respondents are male while 38% are female. 1.9% did not respond to this question on gender. Majority of the respondents were between ages 31 to 50 years, which represent 60.1% followed by ages 21 to 30 years with 23.1% and just a few were above 50 years of age. Similarly, 77.6% of the respondents were first and higher degrees holders, while the rest holds lower degrees such as National Diploma or National Certificate of Education. The educational background of respondents revealed that the population for this research is well educated.

Analysis of Strengths

GSM OPERATORS	SERVICES RENDERED
MTN	Voice Mail, WAP services, MTN FastMail, MTN flash, Save my contacts, Customer services, Call barring and forwarding, Call waiting, Line Identification, Enhance voice mail, Short messages, faxmail, International roaming, fleet management services, content service provision[MTN, 2007]
Celtel	Acces, SMS, Voice mail, roaming, conference calls, Call waiting, call forwarding, Call line ID, call barring, international dialing, fax services, Me2U, Credit me, Call me back, Celtel mobile office, Toll free line, customer care, get connected[Celtel, 2007]
Globalcom	GlobalCom Data Services (GDS) is the national leader in wireless data communications offering a complete range of protocol-independent data telecommunication services. GDS officially launched Broadband Internet Access that will enable to offer Broadband Internet to residential users. This service is launched in close coordination and partnership with the LMT and the three major ISP's in Lebanon: Cyberia, IDM, Sodetel and Terranet [Globalcom, 2007]

Table 3: Major GSM Operators in Nigeria

Discussion

m-Commerce services are predominantly a function of the available telecommunications facilities. In Nigeria, there are three major mobile telecoms operators, namely, MTN, Celtel and Globacom. The operations have a total subscription base of about 38 million. About 52% of the 25 banks offer mobile banking on the platform of Globacom (Table 1). Globacom is the only indigenous operator, the last of the three to commence operation and the most innovative in terms of coverage, services, QoS, and m-Commerce services. Currently, all the banks in Nigeria offer one form of e-Banking or the other, while about 52% of them offers m-Banking, which involves mobile Internet access, account information, and funds transfer. The newly introduced 3 G GSM network, which is expected to become operational soonest will boost the quality of mobile services.

Analysis of Weaknesses

Mobile Banking			
		Frequency	Percent
Valid	High	27	4.7
	average	45	7.8
	Low	20	3.5
	None	40	6.9
	Total	132	22.9
Missing	System	444	77.1
Total		576	100.0

SMS

Banking			
		Frequency	Percent
Valid	high	24	4.2
	average	40	6.9
	Low	31	5.4
	none	34	5.9
	Total	129	22.4
Missing	System	447	77.6
Total		576	100.0

m-banking advantage			
		Frequency	Percent
Valid	ubiquitous	128	22.2
	fast reaction in market development	58	10.1
	Overview over bank acc	33	5.7
	Nothing	29	5.0
	ubiquitous and fast in market dev	29	5.0
	Ubiquitous and overview over bank account	31	5.4
	fast reaction in market development and overview over bank account	11	1.9
	Ubiquitous, fast reaction in market development and overview over bank account	26	4.5
	Total	345	59.9
Missing	System	231	40.1
Total		576	100.0

Table 4: Mobile Banking Patronage and Features

Discussion

Presently in Nigeria, the types of m-Commerce services available are m-Banking and SMS banking. Only 16% of the respondents rated m-Banking as low and higher, while 17.5% rated SMS banking as low and higher. The advantages of m-Banking were listed as ubiquitous, fast reaction in market development etc. The level of patronage is low and it requires concerted efforts of the telecoms operators and the finance institutions to fast-track the development of m-Banking services to serve the teaming populace.

Analysis of Opportunities

Have mobile phone			
		Frequency	Percent
Valid	Yes	546	94.8
	No	13	2.3
	Total	559	97.0
Missing	System	17	3.0
Total		576	100.0

Type of phone			
		Frequency	Percent
Valid	cell phone	517	89.8
	Smart phone	17	3.0
	PDA	8	1.4
	others	10	1.7
	Total	552	95.8
Missing	System	24	4.2
Total		576	100.0

Access web through phone			
		Frequency	Percent
Valid	Yes	141	24.5
	No	388	67.4
	Total	529	91.8
Missing	System	47	8.2
Total		576	100.0

Table 5: Mobile Phones and Access to the Web

Discussion

It is very encouraging to observe from table 5 that 94.8% of the respondents have mobile phones. The distribution of the phones is 89.8% cell phone, 3.0% smart phones, 1.4% PDA and 1.7% others. However, only 24.5% of them can access the web through the phones. It is obvious that some of the cell phones have wireless access protocol (WAP) facilities for Internet access.

Therefore, the number of telecoms operators that offer mobile commerce services should increase for improved access, and there should be improved awareness programmes to increase the number of subscribed customers.

Analysis of Threats

M-banking disadvantage			
		Frequency	Percent
Valid	security	220	38.2
	complicated	25	4.3
	too expensive	31	5.4
	nothing	47	8.2
	Security and complicated	25	4.3
	Security and too expensive	19	3.3
	Complicated and too expensive	2	.3
	Security, complicated and too expensive	6	1.0
	Total	375	65.1
Missing	System	201	34.9
Total		576	100.0

Table 6: Threats to m-Banking

Discussion

The major threats to m-Banking include security of transactions and unavailability of basic infrastructure. 38.2% of the respondents considered security as a major threat, while 4.3% and 5.4% considered complication of services and cost respectively as other factors. It was noted that the cost of mobile telephone service is higher in Nigeria than other Africa countries. However, the operators may not be considering a downward review of tariffs because of lack of basic infrastructure to support the services, particularly, electricity.

CONCLUSION

All the 25 banks in Nigeria engage the use of ICT as a platform for effective and efficient delivery of banking services such as: electronic payment cards, Internet banking and mobile banking services are gradually being introduced. However, m-Banking activities are limited to mobile finance information, download or ringing tones and music as well as telematic services, particularly, vehicle tracking, theft protection and emergency services. The banks and the telecoms operators have the strengths to offer better qualities of electronic and mobile services to the teaming populace of about 140 million. Currently, about 52% of the banks offer one form of m-Banking or the other, but the weakness is the level of patronage and fewer services. The level of patronage is low and it requires concerted efforts of the telecoms operators and the finance institutions to fast-track the development of m-Banking services to the populace. It is expected that when the 3G network is operational, it will boost m-Commerce activities in Nigeria but may require further investment in the quality of cell phones.

However, there are enormous opportunities for m-Commerce implementation in Nigeria based on the rate of growth and the diffusion of mobile devices. There is prospect for patronage but may be dependent on the available services. The major threats to m-Commerce services include insecurity, high cost of services and unavailability of basic infrastructure such as electricity among others.

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