Contributions of token device as a technological innovation for internet banking services in Nigeria

Babagana Kachalla[1], Abu-Ubaida Ibrahim Kuna[2] and Ibrahim Usman Saleh[3]

[1]Department of Business Administration, The Federal Polytechnic Damaturu,
[2]Department of Accountancy, Gombe State Polytechnic Bajoga, Gombe State.
[3]Department of Banking & Finance, The Federal Polytechnic Damaturu, Yobe State.

Corresponding Author's email: ibrahimusmansaleh@gmail.com

Abstract

Banks in Nigeria have been generally slow in adopting new and modern innovative ways of improving banking service delivery to their customers and this may be attributable to their lackadaisical attitude toward the development of new financial innovations. Internet Banking allows customers of financial institutions to conduct financial transaction on a secured website operated by the institutions, which are normally commercial banks. The Token Device is the latest new technological innovation that is use in the internet banking. The use of secondary data method was adapted to source for information. It was discovered that the benefits of using the token device; It allows the banks customers to safely transfer funds internally or externally online, checking of account balances, payments of utilities bills domestically or internationally requesting and stopping of cheques, booking flight tickets among others. Thus, it allows customers' access to their account anywhere; any time throughout the world as far as if there is availability of internet facilities. Some of the challenges encountered in the use of the token device include internet failure, interrupted power supply, high rate of financial illiteracy, and lack of awareness of using the token device.it was recommended that the Deposit Money Banks should conduct an educational awareness campaign to the general public on the usage of token device on social media such as Facebook, WhatsApp among others, the token device should also be cheap and affordable like the ATM cards and the mobile software token must be PIN protected and designed to self-destructive after 5 incorrect entries incorrect PIN.

Key words: Internet Banking, Overview, Token Device, Financial Institutions

I. Introduction

The Nigerian Banking Industry is witnessing a revolution as a result of technological innovations that have become a common feature of banking in the contemporary business environment. The arrival of the Internet and the proliferation of mobile telecommunication companies in Nigeria present both an opportunity and a challenge to banks in Nigeria. The test for the banking sector has been how to profitably formulate a new service delivery means in such a way that its clients will enthusiastically learn to use and trust. Creativity and innovations are crucial for the survival of every business whether in the private or public sector Frimpong (2010).

According to Damanpour et al., (2009), innovation affects a firm's performance positively". Frimpong (2010) states that "innovations provide an impetus for banks to improve their market

performance by recovering from palpable inefficiencies prevalent in the banking industry, as is the case in Nigeria and other emerging countries". Profitability and efficiency are the major motives for banks to assume risks for expansion in its operations. Some of the measures that are used in evaluating bank's profitability and efficiency are Return on Asset, Return on Equity, Net Profit Margin. Bank innovations have the potentials to increase the volume of retail transactions through increased usage of electronic transfers and payment systems which encourage the banking business Frimpong (2010).

Banks in Nigeria have been generally slow in adopting new and modern innovative ways of improving service delivery to their customers, and three reasons may be attributable to their lackadaisical attitude toward the development of new financial innovations. Firstly, the payback period for the initial capital outlay may be longer and unacceptable to management and shareholders, secondly, these innovations may not have a positive correlation with financial performance in terms of efficiency and profitability and thirdly, the innovations may, nevertheless have their peculiar problems like computer and internet frauds, frequent breakdowns of the system and lack of personnel with requisite skill and commitment, which the banks needed in order to satisfy their customers, stay in business and effectively compete Biba, 2015).

Token device for internet banking is a small electronic device that is use by customers of deposit money banks to safety transfer funds internally or externally online. It can also be used for many other online business transaction such as checking of account balances transfer funds/payments to anyone locally or internationally (domically account holder) converting foreign currency to local currency and printing of statement of account (Biba, 2015). In addition, the token device can also be used to pay utility bills, request confirm and stop cheques, as well as book flight tickets. The opportunities are quite enormous it allows customers 24/7 access to their account anywhere in the world so long as there are internet facilities available (Christy, 2015).

Internet baking, e-banking or online banking is a bank services that allow customers to make transaction from the comfort of their homes, office/work or abroad and shop online. As Fraudster continue to introduce more sophisticated attacks, the adoption of advance authenticated method has become a matters of protecting both the bank brand reputation and its button line (Christy, 2015).As online and mobile channels coverage customers also want to bank anywhere anytime, multiple channels integration become more vital and; the industry is already shift to an Omni-channels model that raises the bar for customers centricity and meeting services expectation that are becoming more demanding. Fraudsters who are adopting more sophisticated and dangerous tactics with increasing focus on credential are responsible for the biggest reaction to the growth and development of digital banking (Christy 2015). Most deposit money banks in Nigeria are now offering Internet and Mobile banking services to their customers (Christy, 2015).

However, some money deposit banks, internet banking platform still give out some banking services such as new account applications, currency exchange cheques book request, ATM/Debit/credits card request still requires a visit to the bank, still some banks do not offer the needed security on their internet banking platform such as on-screen keyboards. Despites all these

challenges internets banking activity in Nigeria is still commendable as it enables the customers the convenient access to their accounts and platform banking transaction from anywhere in the world almost 24/7 (GTbank, 2010). Despite the security risks, Internet and Mobile Banking is for all banks customers worldwide; anywhere, anytime, it saves time, transfer funds faster, and conceive (GTbank, 2010) .The internet banking requires internet access before it can be operated.

II. The concept of token device

Token devices

A security token device is a small devices that enable the customers to prove their identity (authenticate) electronically. It may or may not be connected to the computer. Security token connected to computer (via RFID, USB, NFC, bivetol) transmit a unique number that identified the customers to the computer. This number is changed frequently within an internet banking business transaction effectively and efficiently (Somini, 2012). Most the security token devices do not transmit automatically to the computer but rather display a unique number(s), which the customers enter use manually in the appropriate field in internet banking platform. Also some banks allows the token device to this play a kind of number(s), when the customer press a (white) button, which the customer must enter within a short time of the customer required to retie the transactions.

Security token (token devices, hardware token authentication token, USB token, cryptography token, software token, virtual token or key fob); it is a physical devices that an authorized user of computer services such as deposit money banks customers is given to ease authentication in conducting transaction. The conclusion device is used to prove one's identity electronically (As in the case of a customer trying to access their bank account). The token is used in addition to or in place of a password to prove that the customer is who they claim to be. The token acts like an electronic key to access to bank transaction (De Barde, 2007 and Nancy, 2012).

How to use the token devices

The token device is required when:

- Transferring money from an account within the bank or to other banks.
- Generating secure codes.
- Conducting FX transfers
- Processing cash Draft in transit
- Adding more services options on internet banking platform
- Making FX sales

It is thus to be noted when conducting any of the above listed transaction, a customer must be required to input a 6-digit code in a defined field to validate and conclude the transaction the code can be generated by clicking the (white) button on the devices.

Benefits of using token

The following are some the benefits and prospective of using token device:

i. It is accurate, reliable, efficient and effective in executing banking transaction on the mobile. It is simple to use once the software is installed. As far as the customer is concerned, this method works effectively.

ii. It incurs no extra costs apart from the software download and is immune to coverage latency and delivery issues.

iii. It is the latest in banking security technology which uses a 128 bit data encryption to protect account details of a client.

iv. It can be used to make transfers within the bank or any other banks in Nigeria and payment of online bills for utilities and other subscriptions such as phone bills is a fees, books flight tickets, Airtime etc.

v. Using the token device on the internet, it serves as sources of income to the bank, there is some token charges on each transaction by the bank.

vi. Safe and secure: it generates a random code (number) for every transaction there by making it impossible for another person to carry out online transaction from that account.

vii. It can be used to carryout online transactions anywhere in the world it can be used to send money to family and friends as well as make payments from a computer and web-enabled mobile phone.

viii. Placing a standing order on an account to make transfers on foreign currencies such as (Dollars, Pounds, Euro etc) from your domiciliary accounts to anyone in the world

ix. It gives multiple/series of coded password for security purpose unlike the ATM card that has only one password for comfort ability in doing banking transaction at home, there is no limitation or expire date on the usage of the token devices.

x. To meet globalization of IMF monetary policy international financial institutions technological innovation of banking services

Challenges of using token device

The following are challenges facing token device as a technological innovation:

i. It can be easily stolen, get lost or misplace by the customers.

ii. The cost of the token device is so expensive unlike the ATM card that can be afforded by every customer.

iii. Only some selected web-enabled mobile phone can adopt the token device; not all phones can have the internet banking platform of the token device.

iv. It takes longtime; days/weeks to get the token device when applying from the bank; and lack of awareness on the part of the bank about its numerous customers. That is most deposit money banks lack the knowledge of the existence of their customers.
v. High rate of illiteracy among the bank customer especially those from the rural areas.
vi. Poor rate of internet network and power supply trust rated the bank customer in using the token device.
vii. Fraudulent attack: this happened when a system cross entrusted networks such as internet is vulnerable to man-in-middle attacks, here a fraudster acts as the ‘’go-between.
viii. Lack of ensuring trust and confidence with online and internet services as adoption of ICT by some bank customers

Empirical review

Agboola (2006), in his study on Information and Communication Technology (ICT) in Banking operations in Nigeria using the nature and degree of adoption of innovative technologies; degree of utilization of the identified technologies; and the impact of the adoption of ICT devices on banks, found out that technology was the main driving force of competition in the banking industry. During his study he witnessed increase in the adoption of ATMs, EFT, smart cards, electronic home and office banking and telephone banking. He indicates that adoption of ICT improves the banks’ image and leads to a wider, faster and more efficient market. He asserts that it is imperative for bank management to intensify investment in ICT products to facilitate speed, convenience, and accurate services, or otherwise lose out to their competitors.

Hernando and Nieto (2006), studied whether internet delivery channels change bank’s performance, they found out that adoption of internet as a delivery channel involved gradual reduction in overhead expenses (particularly, staff, marketing and IT) which translates to an improvement in banks´ profitability. The study also indicates that internet is used as a complement to, rather than a substitute for, physical branches. The profitability gains associated with the adoption of a transactional web site are mainly explained by a significant reduction in overhead expenses. This effect is gradual, becoming significant after adoption and reaching a maximum generally adoption of ICT. Their analysis shows that this effect varies over time and explains, in terms of cost and income structure, the main drivers of better performance.

Kihumba (2008), analyzed the reason for innovation and financial performance of 43 banks between 2000 and 2007, how each factor caused innovation in the Kenyan market and how innovation has increased annual revenue, business volume, and customers’ turnover and reduced costs of operation, facilitated expansion of market share and geographical coverage of the bank. He found that, some financial institutions do innovate to utilize their excess capacity and to maximize their revenues within existing capacity.

Malhotra and Singh (2009), in their study on the impact of internet banking on bank performance and risk found out that on average internet banks are larger, more profitable and are more operationally efficient. They also found out that internet banks have higher asset quality and are better managed to lower the expenses for building and equipment and that internet banks in India rely substantially on deposits.

Mabrouk and Mamoghli (2010), in their study on Dynamics of Financial Innovation and Performance of Banking Firms: Context of an Emerging Banking Industry, analyzed the effect of the adoption of two types of financial innovations namely; product innovation (telephone banking and SMS banking and so on) and process innovation (Magnetic strip card (debit, ATM and credit card), Automatic cash dispenser; (Automatic teller machine; Electronic payment terminal and so on) on the performance of banks. Their analysis included two adoption behaviors, first mover in adoption of the financial innovation and imitator of the first movers. They found out that first mover initiative in product innovation improves profitability while process initiative has a positive effect on profitability and efficiency. Banks that imitate are less profitable and less efficient than first mover.

Nader (2011), analyzed the profit efficiency of the Saudi Arabia Commercial banks during the period 1998- 2007. The results of his study indicated that availability of phone banking, number of ATMs and number of branches had a positive effect on profit efficiency of Saudi banks. On the contrary he found that the number of point of sale terminals (POSs), availability of PC banking and availability of mobile banking did not improve profit efficiency.

Theory of diffusion of innovations

The theory of Diffusion of Innovations as described by Rogers (1995) is well known. Rogers describes diffusion of innovations as: "the process by which an innovation is communicated through certain channels over time among the members of social systems. It is a special type of communication, in that the messages are concerned with new ideas" (Rogers, 1995). A decision not to adopt an innovation relates to the rejection of the available new idea. However, in order to explain the rate of adoption of innovations Rogers suggests measurement of the following perceived characteristics of innovations: (1) relative advantage (2) compatibility; (3) complexity; (4) trainability; and (5) observe ability. Rogers (1995) postulated that the adoption of innovations is influenced by these five characteristics, and that they can explain the rate of technology adoption.

Technology diffusion is an indispensable process through which technological potential of innovative activities can be actually turned into productivity. Various characteristics of the economic environment in which diffusion takes place may affect the pace of diffusion, while the diffusion itself may also have feedbacks on the environment. To better understand this process, many important questions have to be answered. Among them, experts are curious about the following: who are the early adopters of technological innovations, what factors determine the various diffusion rates across adopter groups, and what feedbacks, if any, the diffusion may have

on the economic environment. The ongoing diffusion of Internet Banking (IB) provided a good opportunity to look closely at these questions (Ngumi 2013).If a commercial bank in Nigeria observes the benefits of technological innovations they will adopt these innovations given other factors such as the availability of the required tools. Adoption of such innovations will be faster in organizations that have internet access and information technology departments.

Conclusion

In conclusion, banks in Nigeria today, are into internet and mobile banking to meet their counterpart of the developed countries. The benefits of using token include Viewing account balances account, obtaining statement, checking exchange rates, checking banks interest rates, transferring funds between the some bank, paying bills and taxes, booking of flight, third party transaction other account within and outside the bank and airline recharge. Despite the security asks, Internet and Mobile Banking is for all banks customers worldwide; anywhere, anytime, it saves time, transfer funds faster, and conceive. The internet banking requires internet access before it can be operates, transfer of funds within the bank and outside the bank, payment of bills, dues and fees, recharge of air time, foreign exchange transactions, and many more. However, the usage of token device faces some challenges which include failure of network and power supply, lack of professional, too expensive, lack of education and awareness to the general public on the benefits of the token device.

Recommendation

The following recommendation include:

- **i.** Educational awareness: the Deposit Money Banks should conduct an awareness campaign to the general public on the usage of token device such on social media, such as Facebook, WhatsApp, Twitter, 2go etc. Mass Media, Television Newspaper etc. about the benefits of the token device.
- **ii.** The token device should be cheap and affordable like the ATM cards.
- **iii.** The mobile software token must be PIN protected and designed to self-destruct after 5 incorrect entries incorrect PIN.
- **iv.** Dynamic memory access should be restored to mobile Smartphone.

References

Agboola, A. A. (2003). „Information Technology, bank automation, and attitude of works in Nigerian banks‟. Journal of Social Sciences.

Biba Ecin (2005). *Does Your Lanky Pause a Security Risk* ` PC world Ret towed 009-1-14.

Christy Serrat (2015).http:// www.techradam.can /news/world off-tech/soft- hand-security the best way 60 beat online banking theories.

Christy Serrato (2015) Soft token, Hand Security the Best Way to Best Online Banking through World of Technology.

De Barde Dunland (2007) Two Factor Authentication `` (PDF) Siemens Insight Consulting. Retrieved/ 2009-01-14

Hernando D and Nieto F (2006), internet banking in Jordan: The unified theory of acceptance and use of technology (STAUT) perspective, Journal of Systems and Information Technology, Vol.9, pp. 71-97.

Internet Banking GTB (2010). Tips service features and more; Nigeria Technology Guide.

Kihumba H (2008), Raising the Bar: Increasing the minimum capital requirements and implication for the industry". PriceWaterhouseCoopers, Accra.

Mabrouk G and Mamoghli J (2010) Impact of E-banking on the profitability of banks in Ghana. Malhotra and Singh (2009), Survey Research and the World Wide Web. Massachusetts: Allyn &Bacon Press.

Ngumi, P. M. (2013). „Effect of Bank innovations on Financial Performance of Commercial Banks in Kenya".

Nader Nofie, I. (2011). The diffusion of electronic banking in Indonesia", Manchester Business School. organizations", Journal of Management Studies.

Nancy Owano (2012). Team Prosecute dismounted Securities Tokens Phasing Retrieved 2014-03-09.

Rogers, E. M. (1995). Diffusion of innovations, *4th edition, Free Press, New York, NY.*

Somini Sengupta (2012) `` Computer Scientist Cost Break Security Token key in Record Time New York Times.

www.mrpepe.com/banking/how-to-apply.

www.mmo.ng/guaranty-trust-bank-token.

http://www.technadar.com/news/world-off.tech/soft-tokes-handsecurity the best-way-to-beat-online banking threats-1284689