

An Assessment of Computer Based Transactions in Nigeria

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Abstract

Payments using computer is not as easy as we think, now that Nigeria has started practicing cashless economy, knowing how to do transactions with the computer machine will be highly recommended. The new policy by Central Bank of Nigeria (CBN) on cashless system of payment has raised a lot of concern to the growth of Nigerian economy, with the objective of reducing robbery, high cost of processing cash, revenue leakages, inefficient treasury management, promoting economic development through financial intermediation, e.t.c. should be considered. This paper assesses the technological modality of using computer based payments, to achieve cashless economy in Nigeria. For instance ATM, Bank Wire Transfer, Western Union, Mobile Banking, PayPal, Perfect Money, Ego pay, Payza, Credit Card, Master Card, Electronic Checks, Gift Cards, Vogue pay, 2checkout, to name but a few as means of achieving cashless economy in Nigeria. It also gives the details of all kinds of payments system using the computer machine,

Keywords: *payment, ATM, Bank Wire Transfer, Western Union, Mobile Banking PayPal*

1 Introduction

The cashless economy is nothing but a system where by business men, civil servants etc.. would

not have to carry money in bulk from one place to another before a transaction is executed. Computer based payment or [1] Electronic banking is defined as the use of computers to carry out banking transactions such as withdrawals through cash dispensers or transfer of funds at point of sale. This is in line with the injunction of the Federal Government of Nigeria. [2] As the cashless policy of the Central Bank of Nigeria designed to reduce the amount of physical cash circulating in the economy goes nationwide on July 1 Senior Correspondent, Sola Alababan said that there is need to tackle the challenges facing the policy so that its laudable aims can be achieved. In other word it a type of E-payment system. An e-commerce payment system facilitates the acceptance of electronic payment for online transactions. E-commerce payment systems have become increasingly popular due to the popularization of the internet-based shopping and banking. [3] Most developed countries are moving towards cashless economy. Sweden is leading the pace, only 3 percent of transactions in Sweden are made using cash; the rest is credit cards or mobile

phone payments. In addition, data has shown that Bank robberies have gone down from 110% in 2008 to just 16% in 2011. Political corruption has also decreased because of the digital trail generated by electronic transactions. Not everyone supports getting rid of cash. Small business owners see it as another way for banks to make bigger profits. The prevalence of electronic transactions also helps explain why Sweden has less of a problem with graft than countries with a stronger cash culture, such as Italy or Greece. This transactions are carried out with the help of payment cards; [4] A payment card is a card that can be used by a cardholder and accepted by a merchant to make a payment for a purchase or in payment of some other obligation.

2. Types of computer based transactions

We have different types of computer based payment systems which can be classified into two categories.

- Offline transactions
- Online transactions

2.1 Offline transaction

[5] An offline transaction, also known as a signature debit transaction, is a payment method that uses a debit card to transfer funds from a checking account to a merchant across a digital credit card network .[6] Offline payment indicates that money is transferred at a later date. For example, a customer deposits a check into a bank account or a payment given by phone. If you offer this choice, you should call the customer and agree on the payment, wire transfers, phone orders, payment to the delivery person, checks etc are different types of offline payments. Offline methods don't charge customers immediately,

instead, offline payments are meant to store the customer information for processing manually. [7] Offline Debits do not involve personal Identification number (PIN). Offline debit cards (or check cards) are typically issued by credit card companies through their participating banks. The cards may be used everywhere credit cards are accepted, including over the Internet. In the physical world, customers who choose to make offline debit purchases must hand over their check cards. Merchants swipe the cards through their payment terminals and complete the debit sales the same way they process credit card transactions. The customers then sign sales drafts that authorize the merchants to charge their accounts. The most common types of offline transactions are Automatic Teller Machines (ATM), Bank Wire Transfer Western Union.

2.1.1 The ATM – Automated Teller Machine:

An automated teller machine (ATM) is an electronic computerized telecommunications device that allows a financial institution's customers to directly use a secure method of communication to access their bank accounts, order or make cash withdrawals (or cash advances using a credit card) and check their account balances without the need for a human bank teller (or cashier in the bank). Many ATMs also allow people to deposit cash or cheques, transfer money between their bank accounts, buy credits for their mobile phones or even buy postage stamps .



Fig 1 Automatic Teller Machine

[8] When you insert your debit or credit card into the ATM, it reads the information encoded on the magnetic strip on the back of the card. That black strip is encoded with your unique card number, expiration date and personal identification number (PIN). Your card is basically a hard copy of the access information to your account. The ATM then asks for your PIN to verify your authorization to access account funds and information. When you have verified your PIN, the ATM communicates with your bank to access your account information. It can then display your account balance or distribute cash to you from your bank account balance..[9] The mechanism behind the work of the ATM is as follows:-it has a Central Processing Unit , Magnetic and/or Chip card reader (to identify the customer) Personal identification Number (PIN) Pad (similar in layout to a Touch tone or Calculator keypad), often manufactured as part of a secure enclosure. It also has secure crypto processor, generally within a secure enclosure. Display screen (used by the customer for performing the transaction)

2.1.2 Bank Wire Transfer

Wire Transfer is a method of Electronic fund transfer from one person or institution to another.

[10] Money transfer can be made from one bank

account to another bank account, through a transfer of cash at a local money transfer office or an online currency exchange service provider. Wire transfer systems are intended to provide more individualized transactions than bulk payment systems. Different systems and operators provide a variety of options relative to the immediate transactions [11] Wire transfers are a type of electronic funds transfer. They are usually considered the safest way to transfer funds, especially large amounts, to other banks or countries. Most large banks belong to a bank network in Belgium called the Society for Worldwide Interbank Financial Telecommunications (SWIFT) that helps to verify and process financial messages, such as transfers. In order to make a wire transfer to another country, you will need to get some information from your payee and submit a fee to a major bank to process the transfer. To do a wired transfer take the following steps,

- 1.) Find out from your bank to see if they do wire transfers and the cost for doing it. Note that for a bank to do a wire transfer, it must have a reciprocal account with the bank overseas. Alternatively if you do not have an account with a major bank, you can find a Western Union branch. Western Union transfers can usually be made without an account.
- 2.) Request for the Bank Identifier Code (BIC), International Bank Account Number (IBAN) and contact information from the payee. You will need to fill in this information to order wire transfer. Make sure all information is correct, as it is rare to receive a refund for a wire transfer
- 3.) Go to the bank branch where you want to do the transfer, ask for a wire transfer form and fill it with your account information and all the account information from the receiver . Sign the form in

front of a bank employee and show them a photo ID.

4.) You will be charged for the transfer. Usually, the payment for sending the transfer is given separately from your account at the bank. The receiver will have to pay to receive the money as well. This will be taken from the payee's account

5.) Wait at the bank while they send the message via the SWIFT network. They should be able to confirm whether the message was received. The funds transfer will take anywhere between a few hours to 5 business days. Note if you plan to make frequent wire transfers, ask your bank to receive a Personal Identification Number (PIN) code so that you can make the transfers over the phone or Internet, rather than going into the bank.

2.1.3 Western Union

The western was founded as the New-York and Mississippi Valley Printing Telegraph Company in 1851, Western Union continues to span distances with innovative technology. For more than 160 years, they have been a powerful force fueling the global economic growth and innovation Western Union is a wire transfer service that allows you to quickly transfer money all over the globe. While it's not without risks, it is a reliable way to get money to friends and family almost anywhere in the world. Follow this guide to make sure your money gets to where it needs to go.

- 1.) Know who you are transferring the money to.
Western Union is a popular way for scam artists to receive money from their victims, so be absolutely sure that you know the person that you are sending the money to, and that you trust what the money is for.
- 2.) Speak with the person who needs the money.
You will need their location so you know

what city to send the money to. You can optionally pay for a password to secure the funds beyond requiring a photo ID for pick it up

- 3.) Send money from a Western Union branch.
Find your local Western Union office and fill out the necessary forms. You can send money from a branch in several ways: via cash, with a credit or debit card, or from bank account to bank account
- 4.) Speak with your recipient again. Provide them with the MTCN number given to you by Western Union, which they can use on the form when they go to an agent location to pick up the money.

[12] Today, the western union promote global economic opportunity and growth by bridging gaps in the financial service sector.

2.2 Online Transactions

Online transactions can be defined as an internet mode of payment which enable users to carry out transactions Online . **Online payment** occurs when a customer's funds are transferred to your payment account right after your customer confirms the payment. Online customers often pays through:

- Credit cards
- Debit cards and
- PayPal, e.t.c.,

[11] online transaction means the transfer of funds from your buyer's account to your account through a trusted platform. Now for a global audience, there are several ways which have evolved that has allowed merchants to be able to receive money online ranging from merchant's own merchant account to third party payment

processing. We have different types of online payment system ,they include the following; Mobile Banking Paypal , PerfectMoney Egopay Payza Credit Card Master Card Electronic Checks Gift Cards VoguePay 2checkout

2.2.1 Mobile Banking

This is a service provided by most banks in Nigeria such as GTB bank, UBA, Diamond, Zenith bank etc.. This service allows you to use your mobile phone and do banking transactions. You don't need to visit the bank to make a transaction. [14] Mobile Banking is a value added service offered by a bank to enable customers conveniently and securely conduct their banking transactions on their mobile phone. A mobile banking platform will enable you transfer funds and check your account balance and statement without having to visit your bank. You can also buy airtime and pay utility bills with your mobile banking platform. Depending on your bank, mobile banking services are offered mostly via a Java based application and/or SMS. Some banks will offer both options but others will only offer only one option. Java based mobile banking applications will require Java enabled mobile phones. It does not run on all types of phones. Even when a phone is Java enabled it may not even be able to support a Java based mobile banking app. If your bank offers Java application for mobile banking you can download it at the bank 's website. Java based mobile banking application are easy to use, because users can easily navigate their transactions through menus. Hence, users do not have to memorize SMS commands for transactions, making them more user friendly. Java banking platforms communicates with the bank via SMS or internet. Mobile Banking application may also be available for native platforms like Android phones,

BlackBerry, Windows Phone, etc. Such mobile banking application will also have the same ease of use advantage of Java based application SMS based mobile banking platforms have the advantage of being platform neutral. They can be used on all types of phone and usually no download is required. However, you have to memories codes required to engage in banking transactions. For example, Transfer 30000 1324 1234567890 could mean Transfer N30,000 to account number 1234567890. 1324 could be the PIN for authorizing the transaction. Mobile Banking usually works with your plastic payment card like Inters witch or another payment card branded by your bank. You activate the service by entering details of your plastic card (ATM/debit card) into your phone following the instruction of your bank. After activating your card on your phone, you can start conducting transactions with your mobile banking platform. However, there are mobile banking platforms that claim to support fund transfer across different banks. Your mobile banking platform can also be used to pay for services, such services include utility bills Electricity, Satellite, Water, etc and taxes. You can also buy airtime of most networks via mobile banking. Services offered by mobile banking are limited compared to internet banking; this is due to the constraint posed by today's mobile phones.

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Fig2 Mobile banking

2.2.2 Credit Card

Credit card is a card issued by banks to customers who desire to make online transactions and payments. [15] A credit card is a payment card issued to users as a system of payment. It allows the cardholder to pay for goods and services based on the holder's promise to pay for them. The issuer of the card creates a revolving account and grants a line of credit to the consumer (or the user) from which the user can borrow money for payment to a merchant or as a cash advance to the user. A credit card issuing company, such as a bank or credit union, would enter into agreements with merchants for them to accept their credit cards. The credit card issuer would issue a credit card to a customer at the time or after an account has been approved by the credit provider, which need not be the same entity as the card issuer. The cardholders can then use it to make purchases at merchants accepting that card. When a purchase is made, the cardholder agrees to pay the card issuer. The cardholder indicates consent to pay by signing a receipt with a record of the card details and indicating the amount to be paid or by entering a personal identification number (PIN). Also, many merchants now accept verbal authorizations via telephone and electronic authorization using the Internet, known as a card not present transaction (CNP). Electronic verification systems allow merchants to verify in a few seconds that the card is valid and the cardholder has sufficient credit to cover the purchase, allowing the verification to happen at time of purchase. The verification is performed using a credit card payment terminal or point-of-sale (POS) system with a communications link to the merchant's acquiring bank. Data from the card is obtained from a magnetic stripe or chip on the card; the latter system is called Chip and

PIN in the United Kingdom and Ireland, and is implemented as an EMV card.

To make payment Online with your Credit Card, you have to remark the following.

1. The 14 digit account number written boldly on your card.
2. The Account Name
3. The CCV (card verification value)



Fig 3 credit card

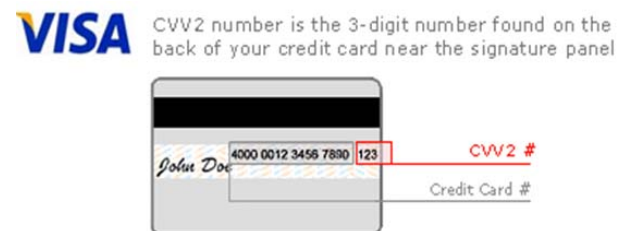


Fig 4 credit showing cvv2 number

2.2.3 Master Card

Master card is a payment network that connect merchant payment terminals with the bank's credit card department. Master Cards are very common and it's a professional mode of money transaction. Master card is issued to customers by different banks. You can visit the customer care of your bank and request to get a master card, you will get that done for you within few hours. With your master card, you can buy goods online and make payments. You can withdraw with your master

card from any ATM that has the MasterCard logo in it. First, you should know that neither Visa nor MasterCard actually issue credit cards themselves. Neither company deals with consumers or merchants directly. Instead, they create and run the worldwide computer networks that process the billions of transactions that occur each day from people who use their credit cards at millions of merchants and ATMs. Both companies make their money from financial institutions to whom they license the ability to market the MasterCard or Visa system to consumers and merchants.

To make payment Online with your master Card, you have to note the following;

1. The 14 digit account number written boldly on your card.
2. The Account Name
3. The CCV(card verification value), See the figure 5 below;

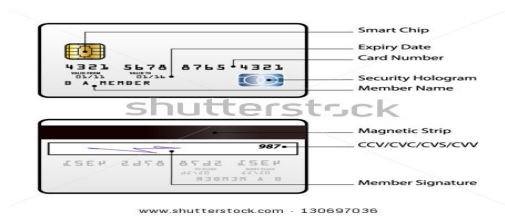


Fig 5 parts of a master card

The only difference between a credit card and a master card is that Credit Cards have Online account where you can transfer money to another account or check your account balance and the history of transactions made from your account, while Master Cards do not have an Online account .

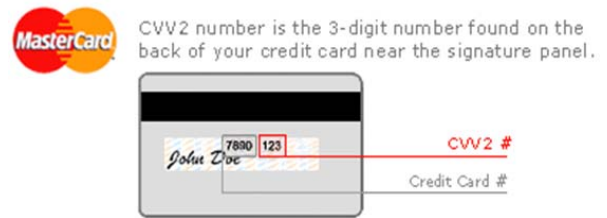


Fig 6 showing the cvv2 number in a master card



Fig 7 master card showing check digit and issuer identification number

2.2.4 PayPal

Paypal is an outstanding company which accepts electronic banking. Paypal is widely used in 99% of online shopping websites and payment forms. Paypal has limitations to which countries they provide their services to. . [16] PayPal is a truly global payments platform that is available to people in 203 markets, allowing customers to get paid in more than 100 currencies, withdraw funds to their bank accounts in 57 currencies and hold balances in their PayPal accounts in 26 currencies.. . [17] International money transfer company PayPal has extended its operations into Nigeria as part of an ambitious expansion plan that involves moving into 10 new markets. PayPal is an international e-commerce business that provides online payment alternatives for consumers via mobile phones or PCs in markets often blighted by financial fraud. With the expansion into the Nigerian market, consumers will now be able to make payments to and from the country through PayPal. . [18] As early as 2001, PayPal had

substantial problems with online fraud, especially international hackers who were hacking into PayPal accounts and transferring small amounts of money out of multiple accounts. Standard solutions for merchant and banking fraud might use government criminal sanctions to pursue the fraudsters. But with PayPal losing millions of dollars each month to fraud, while experiencing difficulties with using the FBI to pursue cases of international fraud, PayPal developed a private solution: a "fraud monitoring system that used artificial intelligence to detect potentially fraudulent transactions. ... Rather than treating the problem of fraud as a legal problem, the company treated it as a risk management. To open a paypal account in Nigeria take the following steps:

- 1).Go to <https://www.paypal.com>
- 2). Click on the "Sign Up for Free" link on the center of the page, or on the blue-colored "Sign Up" link button on the top right of the page.
- 3). On the "Sign Up With PayPal" page that opens up, select your country from the "Your Country or Region" drop-down menu provided.
- 4.) Click on "Open an Account" for Individual account (if you will only buy and sell online); or
- 5.) Click on "Open an Account" for Business account (if you are a merchant)
- 6). On the "Enter Your Information" page that opens up, fill in your details including a valid email address that has never been used on Paypal before. Click the yellow-colored "Agree and Create Account" button. If a security challenge comes up, type in the characters shown in the image and click "Continue".
- 7). On the next page that comes up, a prompt for

your card details will appear. Enter your card number, the expiry date and the 3 CVV digits at the back of your card in the spaces provided. Ensure the billing address matches the address on the bank account associated with your card. Click "Continue" to create your PayPal account, automatically your account will be created for you. After creating the account it will be verified as follows: verify your email address

- 1). Sign into the email account you have just registered with PayPal
- 2). Check your mail, When you find the message, open it and click on the verification link inside it. This opens up a new page.
- 3). The page that opens up confirms your email address is verified and your PayPal account is active. You may sign into your new active PayPal account to verify your card details. It has the following advantages : it is the most secured form of Online Payment system

It is easy to use and It supports 99% of online payment system. It also has the following disadvantages: Any mistake from customer will result to account loss. It does not support every country and it has money limitations based on the account type, verified paypal and non verified PayPal.

3. Challenges of Computer based transactions in Nigeria.

According to experts, there are many challenges facing the introduction of computer based payment system in Nigerian. they include the following ;

1. Network Reliability: Instability of Point of Sale (PoS) networks, which is prevalent across all operators, would pose a problem or serve as a

barrier to usage especially when money sent is not received when needed - which is crucial.

2. Fraud: A prevalent fraudulent act among ATM scammers is likely to occur on the point of sale channel.

3. Security: Concerns were also raised about trust in the Agents providing cash-in and cash-out services, this could be risky for customers and the agents if there is no form of security.

4. Conclusion

Nigerian cashless policy has placed much emphasis on high cost of processing cash, robbery among others. One cannot fault the right of the CBN to regulate monetary transaction in the country, which goes a long way in the management of the nation's economy. E-commerce transaction system is a highly integrated man-machine system, therefore in addition to network security, management of the system is also very important, as it plays a decisive role. Migration from cash transaction to cashless transaction is not something that should be done in a hurry. With Different kinds of payment system one can comfortably do transactions with the computer machine in Nigeria, there by encouraging Electronic Payments.

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