

**WHITE PAPER**



# **POINT OF SALE (“POS”) TERMINAL AS AN E-PAYMENT CHANNEL**



Submitted by: **E-PPAN PoS Project Working Group**  
**E-PAYMENT PROVIDERS ASSOCIATION OF NIGERIA**

*This white paper examines the challenges facing the Point of Sale Business in the payments industry in Nigeria, the business imperatives providers must undertake in order to increase the use of POS and make it succeed in our environment.*

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## Executive Summary

The payment system in any economy represents a major nerve centre; it provides the link between the real sector and the financial sector. The electronic method of payment, generally called e-payment has assumed a centre stage in economic activities of countries of the world. In Nigeria, there has been a very modest move from cash to card initiated e-payment, especially with the introduction of the ATM and the payment of government workers electronically. According to the Central Bank of Nigeria (CBN), 80 per cent of the total money in circulation is outside the banking industry. The ideal implementation of the e-payment solution is to be able to get the unbanked populace into the financial mainstream. Unfortunately this is not so as citizens have not adopted one of the e-payment channels - the Point of Sale (POS), which should drive the system. The POS is not very popular and not widely accepted. Instead citizens equate their debit cards as ATM cards. Many reasons have been deduced as the cause of the unattractive nature of the POS. This paper will expose the challenges and make recommendations on the way forward.

In an extensive study of the payment system, E-PPAN realizes that the POS as a channel of payment and business is fraught with a lot of challenges including: cultural, physical, financial and attitudinal challenges. In one of its popular Techno Interactive Forums, E-PPAN examined the issues inhibiting the adoption of Point of Service\* in Nigeria. The results of the discussions were amazing. The industry which was represented by very senior members of organisations expressed their readiness to combat the slow growth of the PoS business and stakeholders therefore came up with two Working Groups to tackle the issues. This White Paper is the output from one of the Working Group, the E-PPAN PoS Working Group.

# Challenges facing the Point of Sales Businesses in Nigeria

## 1. Acquisition/Total Cost of Ownership

Acquisition and Total Cost of Ownership is a critical factor affecting the proliferation of Point of Sales terminals in our economy. This is based on the analyses of the study of the different stakeholders that currently bear the cost of ownership/acquisition of the Point of Sale deployment and maintenance in the country.

For the entire life cycle of the POS machine, the cost of procurement of the device is just 32.5% of the entire cost spent throughout the life cycle of the device, the remaining cost which is a later chunk of the cost is spent on maintenance, servicing, sustaining reliability of the service on the POS machine. The diagram below represents the ratio of the cost of purchase of the POS with other cost spent during the life cycle of the device.

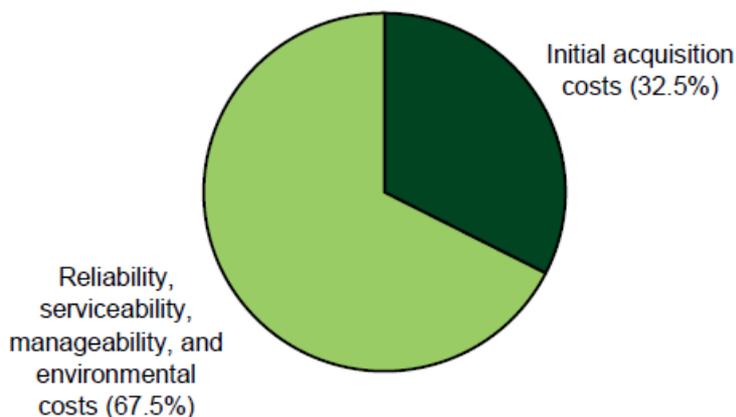


Fig I: Chart showing ratio of TCO throughout the life cycle of a POS

Source: Paper on challenges facing POS, by F. Kalejaiye,

## 2. Business Viability/Value Proposition

The bottom line in a retail environment is that revenue opportunities must be maximized. Software solutions for the retail environment rarely provide the critical transactional solutions such as airtime top-up, bill payment, toll top-up, balance enquiry, money transfer etc, that can drive alternate revenue streams for the merchant with a Point of Service (PoS).

## 3. Consumer Apathy

Different issues have been identified as the factors inhibiting the use of the PoS terminal for payment of goods and service.

### **Ignorance**

Every new technology into the market has to go through a proper introductory process for the populace to be able to adapt and then benefit from the use of such technology. The PoS device as a technology has not been properly introduced to the Nigerian public. There is a lack of basic education and awareness creation about the PoS this is unlike the ATM machine that is widely appreciated because of its well executed introduction and enlightenment programmes. Many of the consumers do not even know what PoS means, what it stands for or what it looks like and what its functions are.

### **Associated Experience**

The consumers' experiences from using ATMs has negatively impacted the use of PoS Consumers who have experienced failed transactions with the ATM, such as dispense error or captured cards, have developed similar fears about the PoS device.

### **Fear of Charge**

Some consumers believe that they will be charged extra from using the Point of Service device hence they are reluctant to pay for their products using the PoS.

### **Fraud**

The emergence of electronic commerce has brought in its wake some major security concerns. Consumers have a vested interest in the protection of their information and money. The potential for fraud and cyber laundering is of great concern to anyone who wants to do any form of e-payment transaction. Therefore for PoS to gain general acceptability, the implementation of a secured platform is paramount to create confidence in consumers and gain their patronage.

### **Attitude & Lack of Trust in the Nigerian System**

Due to the various challenges in Nigeria, consumers believe that the PoS technology has not been perfected. The experience of the consumers with a machine not working (whether due to lack of power supply or breakdown in communication) is indirectly viewed as an imperfect device.

Furthermore, some Nigerians don't believe that some things can work in Nigeria. The unpredictable political terrain, the insecurity, the epileptic power and the poor communication infrastructure have robbed Nigerians of confidence in the reliability of new technology solutions offered in Nigeria.

### **Conflict of PoS definition**

PoS is an acronym for Point of Sale. So it is identified more with payment than other electronic payment services and features such as Cash Withdrawal (CW), Balance Inquiry (BI), and Fund Transfer (FT)

## 4. Data Communication (Connectivity)

Data Communications concerns the transmission of digital messages to devices external to the message source. In context, it can be defined as the transmission of transaction parameters between the PoS and processor's switching application for bank account verification and transaction authorisation.

From a communications perspective, challenges identified can be classified into two categories, technical and commercial.

### Technical Challenges

**Poor Quality of Service on the most cost effective communications solution:** GPRS has been identified as the most cost effective communications solutions for micro payments using PoS terminals. However, GPRS technology is "best-effort-technology" which means that there are no service guarantees or Quality of Service (QoS) mechanisms put in place or activated for service assurance. Also, GPRS traffic is not assigned any prioritisation class or QoS classification parameters are not set at optimal. While these are technical limitations and challenges, some of the reasons for these limitations are commercial.

**Latency;** Another QoS constrain is the round trip time or Latency of GPRS based networks that range from 600 – 700 ms on the average. This can pose a challenge for payment applications that are designed to 'converge' quickly. The implication in this sort of environment is that the application will time out before it closes a transaction session causing a transaction failure.

**Limited Media/Technology Choice & Platform:** Presently, the most widely available and deployed media for micro payment terminal connectivity in Nigeria is the GPRS.

### Commercial Challenge

Widespread adoption of PoS usage is contingent on the ability of the thousands of small merchants to operate them at their stores in urban, semi-rural and rural areas.

This requires banks and ISOs to invest in the infrastructure to achieve this, particularly GPS/GPRS connectivity. GPS/GPRS is the only practical means to provide telecom connectivity for PoS machines in far flung areas where merchants do not have TCP/IP connections. However, where banks cannot/ or will not invest in some areas, most ISOs are also unable to pick up this slack and invest in such infrastructure while seeing some profits. This is partly because if one is to use an APN/VPN connectivity solution that most banks would insist on, the price-regimes of GPS/GPRS data connectivity solutions from telecom operators will far exceed the actual unit data cost of sending and receiving packets of data/transaction.

**High Cost of Reliable Communications:** Communications that provide the level of reliability, 99.9% level availability and service assurance required in the micro-payments industry include dedicated layer -2 leased lines and circuit switched data lines. However, this cost anything from N20, 000.00 to over N200, 000.00 for a low capacity link of 64Kbps.

#### **Circuit Switched Data (CSD) over GSM Option – A Commercial Constraint**

CSD stands for Circuit Switched Data and is obtainable on all communications media, including GSM. However, like traditional dial-up data lines, CSD utilises an entire time slot and is dealt with in a similar manner to voice traffic – attracting the same tariff. This implies that a 30 seconds PoS transaction will cost the same as a 30 second voice conversation – about N9.60.

## **5. Transaction Error**

### **Duplicated Processing**

Cardholders typically experience dispense errors when the linked account(s) to their bank card is debited after presenting and swiping their cards at a PoS terminal but are subsequently unable to confirm that this debit has been successful and obtain a

receipt to this effect. Consequently, the cardholder is forced to either return the goods or to pay using cash while he/she is unable to confirm that his/her account has already been debited. This results in the following:

- An inattentive card user losing money
- Alienates card users and discourages them from using PoS machines in future
- Inconveniences to card users as they now have to physically visit their banks to get refunded

## 6. Fraud & Fraudulent Transactions

Fraud is an amalgam of actions and inactions designed purposely to dispossess the rightful owner(s) the gains and benefits of the wealth, money position etc. All global payment methods (electronic or otherwise) have schemes to defraud them. In the context of e-payments in Nigeria, several factors have contributed to the disturbing trend of reported and unreported fraud cases. Most of these factors are directly linked to the fact that e-payments, is still a relatively new form of making payments in Nigeria. Because it is relatively new and more importantly, because the general public has not been properly oriented and educated about proper uses of e-payment, there is a big knowledge gap that criminals are exploiting to perpetuate several fraud schemes. These fraud schemes can affect both cardholders and merchants.

Card fraud could be 'card present' transactions or 'card not present' transactions. In relation to Point of Sale transactions, fraud refers to card present transactions. Others are outright theft of the PoS device and marginal data therein. Fraud could occur in any of the following ways:

- ❖ Cloning of cards or Counterfeiting
- ❖ Merchant fraud
- ❖ Card not present
- ❖ Stolen cards

- ❖ Loss of cards
- ❖ Identity theft
- ❖ Credit card fraud.
- ❖ Retention of cards by sales personnel and restaurant personnel for subsequent sale or use.
- ❖ Fraudulent applications.
- ❖ Cardholder abuse.
- ❖ Collusion by merchants.
- ❖ Account Takeover
- ❖ Skimming
- ❖ BIN Attack
- ❖ Carding

Issues with fraud are caused because:

- Security features are easily compromised by unsuspecting and unknowledgeable users and operators.
- Individuals with bank accounts are reluctant to adopt debit cards to pay for goods and services
- The legal statutes to regulate and criminalize fraudulent acts are inadequate or lacking thus providing no deterrent to would be criminal
- Ability to remain anonymous while reaping tens of thousands of naira with no fear of being apprehended further entices would be criminals

## **7. Interconnectivity and Interoperability**

Interconnectivity/Interoperability challenges create the inability of cardholders of all issuers to transact business with all PoS devices, notwithstanding the acquirer. No PoS terminal network in Nigeria today can accept cards from multiple card schemes and association. So this is a major problem.

## 8. Merchants Apathy

This refers to the apparent lack of interest in the use of the PoS terminal vs. the acceptance of cash in business transactions by merchants. The merchant has little or no economic interest in the usage of the PoS device.

The issue of apathy is more pronounced in the middle and low-end merchant segments. Focus will therefore be on these lower segments because in most cases the high-end merchants already have Point of Sale terminals in use.

The key issues identified are:

- **Sophistication:** A merchant might have heard about the PoS device but he doesn't understand how it's being operated, doesn't know the benefits and cannot trust it to remit his money.
- **Cash cycle:** These low-end merchants mostly are informal and do not have the patience and time to go to the bank; he needs his everyday money to restock when he is low on some products.
- **Transaction revenue:** Merchants with low margins see little benefit in using the PoS device because the he/she is required to pay the transaction charges
- **Network effects:** Interoperability has been a major issue for the adoption and growth of the PoS terminal. A merchant in a middle class level finally decides to acquire or adopt the device and gets one that accepts only a particular type of card. If peradventure, 90% of his customers come with an alternative card; the merchant will be discouraged.
- **Tips:** The use of PoS terminals practically eliminates tips i.e. the shop attendants in middle class supermarkets etc. In some restaurants some of them go to the extent of indirectly making you forgo your balance with them. Some out rightly tell the customers the device is unavailable so as to get tips.
- **Customer awareness:** Some customers know their cards are enabled for most electronic transactions but still forget to use them at PoS terminals

either because of the lack of constant usage or the cash-in-pocket syndrome of Nigerians while some do not know that their cards can do more than cash withdrawals from ATM machines.

- **Cost of purchasing or acquiring the device:** In purchasing the device the merchants must consider most of the issues stated above, especially for the low-end merchant because his margin is not high enough to potentially cover the cost of this device in the long run.

## 9. Settlement/Reconciliation

This is a serious problem for the card payment industry, affecting all e-payment channels including the popular ATM channel. People don't understand settlement very well. This is at the heart of e-Payment. It is not enough to have ideas about Point of Sales deployment and the hardware/networking aspect. The system should provide prompt final settlement on the day of value preferably during the day, or, at a minimum, at the end of the day ("Same day settlement")

## 10. Ubiquity

- **Unavailability of PoS:** PoS terminals are usually placed in high profile urban areas. Most people outside of these locations have probably never heard of or seen a terminal before. They are not aware of its existence or its uses and we cannot even claim that they have an apathy or attraction to the channel.
- **Wrong market positioning:** PoS is positioned more for payment and not for light banking services such as CW, BI and FT which does not have the same level of attraction like ATM



- **Wrong business model (wrong industry approach):** Today, merchants are made to pay for the use of PoS in their location. The merchants therefore ask why they should part with their money when they can collect cash. So, PoS terminals get thrown under the table.
- **Wrong promoter of the technology and channel.** Banks are not good at promoting services that are outside their core area. They rather concentrate in solutions applicable to their core banking functions thus not addressing the development needs of the society. Just as one finds bank branches and ATMs in select locations it equally applies to how or where they place PoS machines (e.g. fast-food restaurants and high profile retail outlets in cities and major towns). This should not be the purpose of this technology as an alternative channel. PoS terminals should be deployed in rural, semi-urban and urban areas as an alternative or primary payment channel. Unfortunately, the banks do not share in this vision or understanding at the moment.
- **Power Infrastructure:** This is a clear problem but not sufficient enough for low deployment and use of PoS terminals. After all, inverters are used to power ATMs etc. A PoS terminal is movable and can be charged using Generating Set (GS) available at any location. So it is really not a problem
- **Technology Know-how:** There is dearth of appropriate human capital for the electronic payment and in particular information security industry in Nigeria. This includes areas such as software development with respect to e-Payment and security issues, vulnerability and counter measures required to deal with the industry needs.
- **Coordinated Agency/Merchants' networks** is either not developed (i.e. does not exist) or underdeveloped for a large country like Nigeria
- **Regulatory problem and challenges:** There is need for banking and financial service regulatory reform with respect to deposit taking at merchant/agency locations. Today, the banks contribute to the slow growth of the PoS

deployment in the industry. For instance, can CBN stop an ATM that can take deposit from doing so? Should they implement such policy? If an ATM can take deposit including cheques and by extension some of those ATMs will be owned by the IADs, then there must be clear regulation from the CBN on deposit taking at agents' locations especially in the rural areas where banks (and ATMs) will never have presence! Only PoS will!

- Lack of credit bureau due to absence of unique identifier, leading to lack of usage of credit cards and the reluctance to deploy ACH debit (direct debit) programs

## RECOMMENDATIONS

**F**rom the above analysis, challenges facing the adoption of the PoS are many. But basically the Working Group recommends that concerted efforts should be made to check the following four challenges that will greatly encourage payments via PoS. They are:

1. Industry Standards/Guidelines
2. Data Communication (Shared Infrastructure)
3. Awareness Creation
4. Research & Training

To surmount the challenges, the industry must effectively come together as one and implement some basic decisions across the whole industry. It must not end up with people just coming together to express their dissatisfaction with the system and exposing the challenges. But they must show the willingness to make the industry move forward by implementing identified solutions and sticking to the decisions using self-regulations to overcome the challenges.

The recommended solutions are:

### **1. Industry Standards/Guidelines**

- 1.1 Public policy should ensure interoperability standards are met as part of licensing conditions for players and operators in the industry. This will override business considerations that currently prevent operators from working together i.e. who is to release what and what script and application to be deployed on the PoS terminals and also at the host end i.e. on the TMS (Terminal Management System) and CMS (Card Management System) etc

- 1.2 Standards should specify the Nigeria EFT interface specifications.
- 1.3 PoS devices must comply with the PCI DSS standard to be interoperable.
- 1.4 The devices should be EMV compliant and Chip and PIN driven.
- 1.5 Regulatory guidelines must be put in place to ensure level playing field for operators with the following suggestions:
  - 1.5.1 All PoS terminals should accept and process ALL cards presented
  - 1.5.2 Industry should establish an appropriate Interchange fee.
  - 1.5.3 No multi-acquiring at PoS
  - 1.5.4 All domestic card payments to be switched, cleared and settled locally.
  - 1.5.5 Customers to pay marked price of goods at PoS.
- 1.6 The industry needs to be clear about who is involved and who needs to be involved
- 1.7 Processes must be clearly spelt out.
- 1.8 Roles and responsibilities of the different players must be clear because when roles are not clear processes will not be clear
- 1.9 POS Business ownership should rest in the hands of the ISO's to enable proper regulatory process.
  - 1.9.1 ISO business operations should be well spelt-out with detailed roles & responsibilities of every stakeholder involved in the business circle.
    - 1.9.1 Operators should have rules and procedures that are clear and also
    - 1.9.2 Explains the system design, timetables, risk management Procedures
    - 1.9.3 Explains the system's legal basis

- 1.9.4 Explains where there is discretion and how it is exercised
- 1.9.5 Sets out decision and notification procedures, timetables of handling abnormal situations
- 1.10 Central Bank should establish a department level competition authority to guide against unhealthy competition.
- 1.11 Processes for Dispute Resolution should be put in place.

## 2. Data Communication (Shared Infrastructure)

- 2.1 From the work done, it was observed that the greater part of the challenges in the business is with data communication. The solution to this is a sponsored Industry pressure for data communication solution(s).
- 2.2 Telecommunication companies must be made to see the impact of data communication on the business. The industry under the auspices of E-PPAN must sponsor a business research that exposes the business viability of POS to the telecommunication companies.
- 2.3 An arrangement should be made to grow a technology that will fit into the business. This will be handled by an industry pressure group. Currently, a committee set up by E-PPAN is already working with the telecommunication operators to address the issue of shared infrastructure in data communication. Central Bank of Nigeria and the Nigeria Communication Commission should become very involved with the on-going work by the committee.

### 3. Awareness Creation

3.1 There should be an aggressive nationwide awareness campaign to get people to start using the PoS terminals. People should be enlightened on the benefits of using the PoS and encouraged to use the PoS.

3.2 This awareness campaign and enlightenment project should be carried out industry wide, especially in regards to fraud prevention. When the systems are relatively reliable and dependable, consumers need to be confident of the security of their money and data and then we will be on the way to wide availability of the PoS. Consumers will demand for the terminals and merchants will be compelled by market forces to acquire them.

3.3 Funds should be made available to the industry Association for the purpose of awareness and campaign by all stakeholders spearheaded by the CBN.

- The Central Bank of Nigeria for the following reasons should sponsor this awareness campaign:

3.3.1 The widespread use of PoS will lead to a marked reduction in the value of banknotes in circulation. This will lead to a reduction of Central Bank printing handling and sorting activities of banknote. Banknotes represent non-interest bearing liabilities for Central Bank of Nigeria; any reduction of their use in the economy also affects Central Bank's revenues.

3.3.2 PoS will further enhance the infrastructure provided by Central Bank to effectively serve the un-banked, under-banked and rural population. This will help the CBN achieve its FSS Vision 2020.

3.3.3 It is the role of the CBN to provide secure, efficient and effective mechanisms for the exchange of money between

transacting parties. PoS provide a channel that fits this description.

## 4. Research & Training

4.1 Research determines the success or failure of change in any process. In other words, the success of any project/endeavor greatly lies on a good extensive research. The importance of an industry based research on the PoS scheme as a channel for e-payment cannot be overemphasized.

4.2 This research will aim at investigating, through theoretical constructs (technology acceptance model, theory of reasoned action) and an empirical analysis, the critical factors that will ensure the adoption of the best PoS technology and business model which will address our peculiar environment.

### 4.3 The benefits of research and training:

4.3.1 In-depth Research and Training will help spell out roles and responsibilities of key players in the industry as a wider and more comprehensive knowledge will be acquired from a global perspective.

4.3.2 The deficit in any chosen PoS system/technology will be highlighted by well executed research.

4.3.3 The implementations of training and Research programs can significantly further the industry's growth potential and profitability as it increases core skills that yield higher levels of productivity.

4.3.4 The results of an industry based research and Training can lead (ideally) to changes in methods, practices and approach towards the PoS technology, this will help in the adoption of global best practice which when implemented and absorbed into the PoS scheme can bring about a paradigm shift in the business perception of the PoS technology.

4.3.5 The employment of the dual tool of Research and Training will be effective in creating positive attitude through clarifying the behaviours and stance of the stake holders and Consumer towards the acceptance and usage of the PoS terminal.

4.4 Training can be cost effective, as it is cheaper to train industry players compared to the risk associated in educational gap which fraudsters can take advantage. Training can save the industry money as it will help the industry to be more efficient and ready to combat eventualities.

4.5 Participants need to understand the financial risks they bear

Also the working group strongly recommend the establishment of a Special Fund to promote financial inclusion using e-payment technology with special emphasis on the PoS channel.

## 5 Creation of a Special Funds

5.1 E-PPAN should work with the CBN and the Universal Service Provision Fund (USPF) through NCC to subsidize local merchants in identified rural and unserved areas for POS acquiring and related technologies. This has direct and indirect impact on the purpose of that fund in the area of providing universal access to ICTs. For example if there is a POS merchant in a rural and unserved area and people in that locality have cards for use on the POS terminal they could use same on the Internet - to check their WAEC/GCE/NECO/UME results and pay for application - recruitment into various government agencies - Police Force, Customs Service, Immigration etc. It will also help government to collect tax revenue from such localities.

5.2 CBN could also create a similar fund and call it the Financial Service Inclusion Fund (FSIF). USPF fund was based on licenses gotten from the Telco operators' and government budget. Similar fund can be created through mobile licenses and related licensed that will take place now and in future.

5.3 This will be beneficial to the operators and will help promote the entire industry.

## CONCLUSION

**T**he use of Point of Sale terminals for business transactions and payment solutions elevates the national payments system. It reduces the costs of transactions in general for the nation, the Central Banks, Financial institutions and the merchants without any significant imposition of extra burden on the consumers and citizens.

The successful implementation of PoS across the nation will help resolve the issue of financial exclusion among the poor and the rural dwellers. This will help grow the economy, as more transactions will be captured in the formal settings. It will help the government know exactly the true position of the economy and direct government planning and spending. The ability of the government to have accurate statistics will help economists to correctly forecast growth or decline. It will help experts to chart the growth of the financial industry.

The Central Bank of Nigeria most especially should seize this opportunity of the efforts of industry stakeholders to make a bold step and see how PoS can be made a primary channel of payment. This will serve as a means of great savings for the Nation and improve the economy in general.

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\* The Working Group held four meetings between 22<sup>nd</sup> of April and 10<sup>th</sup> of June 2010.

## Suggested Solutions to specific problems

**W**ith the apparent gains of e-payment systems in Nigeria, the EPPAN PoS Work Group got so many suggestions on how to increase the deployment of PoS terminals as the predominant payment channel thereby extending the values and benefits to the larger Nigerian population. The Working Group used these suggestions as basis for our recommendations with the realization that all of these suggestions cannot be implemented at once.

**Here are some of the suggested solutions to specific problems:**

### **1. Acquisition/Total Cost of Ownership**

The cost of acquisition/total cost of ownership can only be taken care of through design of a good business case. If the cost can be efficiently recovered from the business then this will not pose as a challenge.

### **2. Business Viability/Value Proposition**

- For every business owner, the return on investment must be clearly visible before investments can be made. Business promoters are yet to capture value from investing in the PoS business. The industry must therefore promote the benefits of the PoS business to show viability.
- Operators should look at profit as a long term investments.
- Trainings and awareness campaign should be organised to target the different tiers of players. They are:
  - The management of banks
  - The officers directly involved in the operations
  - The merchants
  - Cardholders/users
  - Etc.

### 3. Consumer Apathy

- The industry must embark on joint campaign strategy to enlighten consumers on the benefits of the PoS.
- A toll free central call centre or complaints centre should be established so consumers will be assured that they have someone to speak to in the event of having issues.
- Deliberate efforts should be made to check fraud, as this is a major challenge.
- Government should provide incentives to encourage citizens to use the PoS e.g. reduction of VAT on goods/services purchased using PoS.
- The Government can encourage PoS use by promoting a national lotto on the PoS.

### 4. Data Communication (Connectivity)

- The industry should promote an industry wide pressure group to encourage QoS on best effort technology.
- The industry can also guarantee transaction volume to a network provider to encourage the telecoms company to dedicate some bandwidth to the industry.

### 5. Dispense Error/Loss of Transactions

The industry must invest in adequate communications infrastructure

### 6. Fraud & Fraudulent Transactions

- There is need for a collaborative effort by all towards combating the ugly effect of fraud and its attendant discouragement to users of PoS, ATM and other electronically driven devices.

- Fraud prevention and detection is an important form of risk management in the e-payment industry. Fraud prevention describes measures to stop fraud occurring in the first place and when it fails fraud detection comes alive.
- As part of the solution towards fraud prevention, anti-fraud software modules should be developed to:
  - Detect fraud accurately and early
  - Provide relevant information to fraud analysis
  - Automate processes where possible
  - Self adapt to fraud changing patterns
  - Self adapt to changing patterns of customers
- Fraud prevention and detection may be implemented on the issuer or acquirer side and if on the acquirer side, the suspicious transaction on that side will be declined.
- Guidelines on PoS should require that the devices be EMV compliant and the cards should be chip and pin driven.
- The under listed are processes that can be adopted to mitigate fraudulent transactions at PoS terminal:
  - Adoption of standard card acceptance procedures.
  - Prohibit irregular transactions
  - Merchant Staff training and awareness
  - Development and adoption of a Card Recovery Bulletin.
  - Merchant Rewards for identifying fraudulent activities.
  - Industry players need to agree and clearly define the roles and responsibility of all stakeholders – switch operators, ISOs, Banks, Regulators etc.
  - Stakeholders must educate and lobby the Federal Legislators so that they can update the laws criminalizing e-Payment fraud

- Cardholders as well as bank employees and law enforcement officials need to be enlightened on the proper use of the different payment channels.
- It is however strongly suggested that focus should be directed primarily towards education of both cardholders and merchants. Educating cardholders and merchants about fraud control and prevention must be an ongoing program. Education materials should be designed to encourage cardholders and merchants to appreciate their respective responsibilities in preventing and controlling payment card fraud.

#### Prevention Education for Cardholders:

- Materials should be designed to educate cardholders on prevention and must contain information on the following topics:
  - Preventing card loss (that is, the basics of card use and security),
  - Safety measures for Personal Identification Numbers (PINs).
  - Preventing card account number compromise.
  - Reporting procedures for lost or stolen cards
  - The extent of cardholders' liability, if any, for fraudulent use.

#### Prevention Education for Merchants:

- Education programs and materials targeting merchants must instruct them on the following:
  - Recognizing the characteristics of fraudulent users, such as:
    1. Lack of supporting identification.
    2. Nervousness.
    3. Excessive rush (when customers say they have no time to have items wrapped).

4. Indiscriminate purchasing without regard to colour, size, or quality.
  5. Purchase of automotive parts (for example, tires) without installing them at the time of purchase.
    - Recognizing suspicious purchasing patterns.
    - Understanding the importance of using established control publications and systems (that is; hot card notices, bulletins, authorizations, and so on).
    - Recognizing counterfeit cards and altered signature panels.
    - Recognizing skimming devices and methods.
- Prevention education materials for merchants can be presented in a variety of formats including, but not limited to, the following:
    - Periodic service calls
    - Newsletters
    - Training seminars

## 7. Merchant Apathy

These concerns can be assuaged by ensuring:

- Efficient communications network.
- Timely settlement/remittance of transactions.
- Merchant education on card acceptance procedures.

## 8. Settlement/Reconciliation

- Industry training should be carried out to create awareness
- Roles should be clearly defined.

