

# E-Payment System and its Sustainable Development in the Nigerian Economy

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#### **ABSTRACT**

The e--payment system has gradually emerged strongly and has no doubt earned competitive advantage. However, the process of establishing e-payment practices in the pursuit of a sustainable development and economic growth is yet to be firmly established. Firstly, this paper describes the significance of e-payment system by explaining the transition from the traditional payment practices to the evolving electronic payment practices which has broken many new grounds and has taken a global dimension. Secondly, it explains why the electronic payment channels such as the use of ATM, Mobile banking, internet banking, POS terminals, etc could enable business to flourish and reduce the movement of cash/cash handling which in turn helps to curb crime rates and would protect consumers from many dangers. Also, it explains why it has gained greater height of acceptability and thus explains how information communication technology (ICT) could be exploited and enhanced for this purpose. Again, it develops a strategic management framework for leveraging e-payment practices by providing considerable and practical suggestions on the use of e-payment system, its features, benefits, success factors and possible attendant risks associated with e-payment system and e-payment constraints. Finally, it outlines why we need e-payment system, and what we should do to enhance and improve the standard of living, as well as facilitating economic, social and technological changes as certain values are espoused by sustainable development which in turn, would help to foster economic growth in the Nigerian economy.

**Keywords**: e-payment, mobile banking, internet banking, corporate i-bank, smartcards/credit /debit cards, POS, ATM, sustainable development.

## INTRODUCTION

The economic, business, social and technological components of the nation and the globe at large, are becoming very dynamic and incrementally volatile. E-payment system is synonymous with e-commerce or e-money transactions and this has been accorded the appropriate recognition in today's business world. As an integral part of e-commerce, e-payment system evolved and created new financial needs that have overridden the traditional payment system. Hence, virtually all parties – government parastatals, MDA's, business community, the financial service industry, academics and a range of diverse individuals are exploring on various electronic payment system and the digital currency, which has no doubt, resulted in a definite and positive impact on our Nigerian contemporary development and economic sustainability since the financial system of every nation occupies a crucial position in its economy.

e-payment system comprises a form of direct payment and banking transactions without the physical appearance at the bank, via electronic interactive communication channels and other technological facilities e.g. automated teller machine (ATM), POS, internet banking, mobile banking, credit cards, web pay, etc. e-payment can also be seen as effecting payment from one end to the other through an electronic medium without the manual intervention beyond imputing the payment data (Dankwambo, I. H, 2009). E-payment is made using various devices. The concept used for these devices is called electronic channels (Milutinovic, 2003). It naturally does not include cash. These real time banking platforms/modules have become popularized and has gradually taken a global dimension because it has proven to be user-friendly, safer, easier, more convenient, faster, has a high degree of flexibility, effective and efficient and covers a variety of e-payment transactions, irrespective of location and the bank. Certainly, its multiple potentials and benefits inherent in our modern day sustenance and development cannot be over-emphasized. It's a predicted innovation in the financial sector, welcomed by a great number of business men, MDA's, MDG's and individual consumers (Kalokota and Ravil, 1996).

## STATEMENT OF THE PROBLEM

E-payment system like any other ICT enabled system is not immune to usability problems/challenges, e-crimes such as fraud and other attendant risks. The task of meeting up with the challenges of optimizing the benefits offered by e-payment system has remained a major source of concern to industry operators and other shareholders (Ashaolu, 2004). Security concerns and control of unsolicited information are foremost (Johnson,



2001; Bynam, 2001). Payers using electronic payment system would have to trust that their personal information will not be passed on to other parties or that their credit card information is safe from hackers (Jarvenpaa et al, 2001; Belanger et al, 2002; Garbarino and Strahilevitz, 2004). The e-payment system features many possibilities for fraud (Grazioli and Wang, 2001). Also, apparent disappearance of information, lack of expertise and information asymmetry pose a lot of challenges as some are yet to get acquainted with modern technology. In an ideal condition, where all the ancillary services are found to be in existence, the economy will stand to enjoy tremendous development and sustenance cum the benefits of quick service delivery, reduced cash handling, improved efficiency and effectiveness and more importantly, increased profitability on the part of service providers.

## **OBJECTIVE OF THE STUDY**

The main objective of this paper is to examine the impact of e-payment on sustainable development in the Nigerian economy. Other specific objectives include:

- To determine the effect of mobile or telephone banking on the standard of living.
- To ascertain the relevance of POS on effective service delivery.
- To find out, if there's a significant relationship between the automated teller machine (ATM) and real time reporting.

The findings and recommendations of this study will proffer solution to the various challenges and other attendant of issues e-payment for the government, MDA's, academics, individuals, financial service providers, the business community, and so on for a more sustainable development. Also, it will help to dispel the fear of the unknown about e-payments.

## LITERATURE REVIEW

Banks and other financial service industries have used e-payment channels for some years now, to communicate and transact businesses with both the domestic and international corporate customers. They even use these e-channels for receiving instructions and delivering their products and services to their various customers though it varies widely in capability and sophistication. With the evolution of e-payment system/channels, individuals and businesses, can now request information and carry out most retail banking services via the personal computer using the internet service, mobile phone, automated teller machine, etc (Daniel and Sathye 1999). According to Obaro (2009), e-payment is electronically driven. It's a subset of e-commerce transactions which includes electronic payment for buying and selling of goods and services offered through the internet (Dankwambo, 2009). E-payment is a form of financial transaction in which funds are transferred through an exchange of electronic signals between financial institutions, rather than an exchange of cash, cheque or other negotiable instruments (Clive, 2007).

Global Journal of International Business Research (2009), Vol. 2, No. 2, described e-payment as any payment to business, bank, or public service from citizens or businesses, which is executed through a telecommunication medium, in electronic network, using modern technology. It is usually done by transferring information concerning the account of the parties involved in the transaction through the technological distribution channels. Gary and Perry (2002) averred that e-payment has an overriding advantage over the traditional payment system, such as authority, privacy, good acceptability, low transaction cost, convenience, speed, anonymity, interoperability, security, universality, etc.

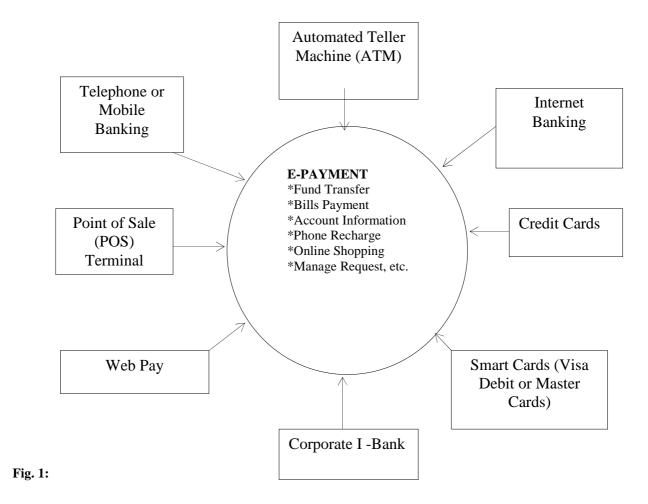
## **E-PAYMENT CHANNELS**

There are various e-payment modules or channels through which banking or monetary transactions can be made. These technological innovations have been identified to contribute to the distribution channels of banks (GOI, 2005). The evolution of banking technology has been driven by changes in the distribution channels as evidenced by the automated teller machine, telephone or mobile banking, internet banking, etc (Chang, 2003; Gallup Consulting, 2008). E-payment has been observed to be the latest in the series of technological wonders of the recent past and these e-payment channels have emerged as effective and efficient service delivery channels for the traditional payment system (Kaleem and Almad, 2008). Other e-payment channels are diagrammatically shown below:

## **Mobile Banking**

This enables you to carry out different banking and other financial transactions using your mobile phone or any other mobile device and it is usually embedded in the sim card used to store information of users (Zika, 2005). It can be used for bills payment, (e.g PHCN, DSTV, MTN, etc.) account to account transfer, interbank transfer, phone recharge, check account history, chequebook request, balance enquiry, book for ticket online and so on. It is usually menu-driven. It allows customers to access their accounts and conveniently monitor their account transactions anywhere nationwide, and enables banking and payment transactions only on Java enabled mobile phones. One may not need to use other devices such as modems, POS terminals, etc.





A conceptual model of e-payment system showing the different e-payment channels

## **Automated Teller Machine (ATM)**

The ATM is a combined computer terminal with cash vault and record-keeping system in one unit, permitting users to enter a bank's book keeping system with a plastic card containing a personal identification number (PIN). It is accessed by punching a special code number into the computer terminal linked to a bank's computerized records (Rose, 1999). It is aimed at decongesting the banking halls and providing alternative avenues for cash for customers outside banking hours. Customers can have access to their account information, check account balances, make cash withdrawals, purchase airtimes, pay bills, e.g DSTV, PHCN, etc. It is mostly located outside banks, airports, schools, shopping malls, places far away from home, bank offices, etc. It offers several retail banking services to customers. First introduced as cash dispensing machine, but now provides a wide range of services (Abor, 2004).

## Corporate I-Bank

This is a fully secure, online real time electronic delivery channel that allows authorized personnel to securely approve payments to suppliers, distributors, vendors, contractors, employees, etc. These payments can be made to interbanks (other banks), account holders, in a swift and reliable technique. It eliminates manual writing of cheques and payment in person. It is specifically designed to meet the needs of corporate clients. It does trade finance monitoring, import duty payments, document management, direct debit, foreign payments via swift, cheque confirmation, multi-bank account viewing, interbank payments (salaries, via NIBBS, NEFT, & INTERSWITCH), complete audit trail, and lots more.

## **Internet Banking**

Internet banking is a real time solution that allows you to access your accounts 24hours a day, 7 days in a week service with no banking hour restriction. You may check your balances, view your account statements, and transaction history even for your various accounts. You can also transfer money between your accounts, pay your bills, change your password over the internet, and all in a secure manner. It allows 24/7 account access, views real time transactions, account balances, fund transfer, book for airline tickets, within/interbank, download



activity in any format, local money transfer, monitor trade finance transaction, cheque confirmation, create, amend or cancel standing orders, direct debits, bills payment. Etc. it encompasses all banking transactions using a personal computer, connected to the internet via a browser and a token given by your bank. Internet banking gives one an authority to have a greater control over one's account, a company's account especially if one is a signatory to a particular account of an organization or a company, as it relates to payment of salaries, vendors, contractors, fixed deposits, managing requests such as bankdraft and chequebook requests, debit/credit cards requests, etc. It reduces cost, improves the flexibility of business transactions (Balachandher et al, 2001).

#### Creditcard Electronic Payment (CEP) System

The credit card e-payment system is widely accepted and being used by consumers and merchants around the globe (Laudon and Traver, 2002). This form of payment equally has its own advantage over the traditional mode of payment and they include privacy, efficiency, acceptability, mobility, compatibility, low financial risk and anonymity. It represents the automated capture of data about purchases against a revolving credit account (Plerce, 2001). Consumers usually send their credit card details to the service providers involved, for their purchases. The credit card organization checks the credit card status, certifies it, total the cost of purchases and then debit the buyer's account immediately. It is usually not suitable for small payments.

## SmartCard Based Electronic Payment (SEP) System

These are essentially credit cards sized plastic cards with memory chips and in some cases, with microprocessors embedded in them as storage devices for much greater information and greater level of security than the credit cards with inbuilt transaction processing capability (Chakrabarti and Kardile, 2002). Owing to their considerable flexibility, they have been used for a wide range of functions. It also contains some kinds of an encrypted key on the user's processor and allows users to enter their personal identification number (PIN) code before usage.

## Point of Sale (POS) TERMINAL

It's an electronic payment solution, a device that allows customers to make instantaneous payment from their bank account to merchants' account using cards, when making purchases. It uses a debit card to activate an electronic fund transfer (EFT) process (Charafas, 1988). With the POS, the merchant receives payment for goods/services purchased rather than the traditional method of accepting cash. It is available in shops, supermarkets, hotels and restaurants, clubs, quick service restaurants, airlines, travel agencies, ticket sales outlets, etc. it helps to eliminate issues associated with cash handling and movement. Merchants can have interswitch, VISA Debit or Mastercard card POS.

## **Debit Cards**

This provides an electronic means of withdrawing cash, checking balances, making purchases and can be used on POS, ATM machines, etc. Card holders must personally authorize each transaction with the Personal Identification Number (PIN) code. It is usually limited to available funds in the bank account. When a payment is made through a debit card, the funds are immediately withdrawn from the purchaser's bank account. Sometimes, it is a single currency locally used but globally accepted. It can help you access fund directly from your account. No more funding a local domiciliary account when travelling. No need to bother about black market exchange rate. It eliminates the need to buy foreign exchange, enjoy the security of using the chip in PIN technology, transact your business using various payment platforms, accepted at ATM locations, POS terminals, Internet, etc. Free sms or e-mail notification for all transactions. It can be used anywhere in the world. Instantaneous alerts are usually sent to mobile phones via sms.

#### Prepaid Cards

Prepaid cards are used both locally and internationally wherever the VISA/Mastercard logo is displayed on the web. It has an online security feature, online account management, and lots of possibilities. It is an online payment solution for merchants who have e-commerce enabled websites, and want customers to pay for goods and services purchased directly from the websites. Users make payments for goods and services directly via the merchants' websites. It allows customers to receive payment for goods and services through the use of electronic cards from various switch platforms.

## E-PAYMENT AND SUSTAINABLE ECONOMIC DEVELOPMENT

E-payment system has no doubt promoted economic and sustainable development in the Nigerian economy at least, to a large extent. It is an invaluable and powerful tool for driving development, supporting growth, promoting innovation and enhancing competitiveness (Crupt, 2008; Kamel, 2005). Businesses, banks and other financial service industries are now turning to IT to improve business efficiency, service quality, attract new customers and retain already existing customers' loyalty. E-payment has no doubt experienced explosive growth and has transformed the traditional payment practices (Gonzalez, 2008) and it has gradually led to a paradigm shift in marketing practices resulting in high performance in the financial service industry (Maholtra and Singh, 2007). Others are:

## **E-payment and Job Creation:**

The effective implementation of e-payment system requires investment in ICT in virtually all aspects of the economy which will in turn boost productivity, create job opportunities, improve the quality of life and standard



of living, result in the production of quality goods and services, greater innovations thus reducing poverty level in the economy.

## **E-Payment and Transparency:**

In a bid to curb crime rate and the level of corruption in the economy, transparency is ancillary to trailing bank transactions history and as such, social capital can then develop to increase per capita income.

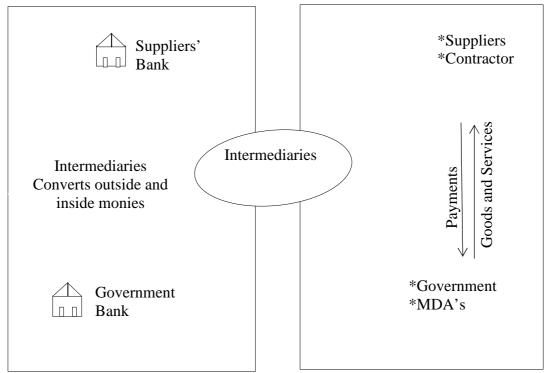
#### **E-Payment and Development of Social Capital:**

Availability of good roads, adequate and constant power supply, adequate infrastructural facilities, schools, etc. should be made available for the effective implementation of e-payment. Adequate e-payment channels should also be installed in schools, along the road, even in some rural and urban communities to reduce the holding and movement of cash and even the risk associated with cash movement. It will reduce the cost of doing businesses, increase capacity building and utilization, create employment opportunities and so on.

## **E-PAYMENT PROCESS**

E-payment can be done in different categories such as business to business, business to consumer, consumer to business, consumer to consumer, person to person, person to government, government to person, etc.

Fig. 2: Showing the e-payment process



Source: Global Journal of International Business Research Vol. 2 [2009].

From the figure above, it shows that the intermediaries act as the electronic bank. They convert and facilitate the circulation of online payment. The only circular thing is to provide the payment information required by both parties.

## **CHARACTERISTICS OF E-PAYMENT**

As shown in the preceding model of e-payment channels, e-payment is characterizes by the following:

- [a] **ACCEPTABILITY:** The parties involved in the transaction should agree on the system
- [b]. **SECURITY:** The system should be such that is secure.
- [c] <u>COST:</u> Cost effectiveness should be ensured such that, cost transaction should be such that has low transaction cost. It has low transactional handling cost.
- [d] **Anonymity:** Most parties crave for anonymity and as such, physical appearance and identity of the parties involved in the transaction might not be so necessary.
- [e] <u>Universality:</u> The location of the transaction is seemingly immaterial as all kinds of transaction can be done irrespective of the bank and the location, be it person to person, person to government, government to employees, organization to government, from home, office, even while travelling, etc. This is also applicable to currency conversion and the payment value.
- [f] Usability: It is user friendly and very interactive, and convenient.



## [g] **Speed:** It is usually fast and has real time reporting.

Poenar (2006) opined that a successful e-payment system should be able to satisfy parties involved in the transaction. As such, he itemized the underlisted as factors that guarantee a successful e-payment system

- [h] Irretrievability
- [I] storability
- [J] Monetary value, must be backed by currency.

#### **E-PAMENT BENEFITS**

The most encouraging factor in the use of e-payment system is the lower fees coupled with the reduced paper work and human error, which in turn minimizes disputes in transactions (Howeroft, Hamilton and Hewer, 2002). The traditional payment practices such as cash deposits, bank draft and chequebook request, cheques payable to third parties have now been automated and a considerable high volume of cash movement and/or transactions have declined to a large extent (Agboola, 2006). The effectiveness of e-payment is greatly determined in terms of costs and benefits (Pavlov, 2003; Gefen and Strand, 2004; Apiah and Agyemang, 2007; Abu-Musa, 2005; Joseph, et al, 2005; Chandio, 2008; Olatokunad Igbinedion, 2009). The benefit of low-cost services can be considered a key reason behind the development of e-payment system (Robinson, 2000). Other numerous benefits are:

- Easy tracking of payment and audit trail.
- Reduces corruption.
- Holds money and transfer it in various ways.
- Portability and convenience.
- It is efficient and effective.
- It is convenient and can equally be done with wireless devices like tablet PC, smart phones, etc.
- It will improve the quality of financial reports.
- It has real time reporting/payment solution.
- Eliminates stress particularly in writing of cheques and equally reduces the risk of stolen cheques in the event of forged signature, disparity in amount in words, figures, etc.
- It promotes good governance.
- Promotes economic growth and development.
- Transparency and accountability.
- Prevents forgery and illegal copying of e-cash.

# ASSOCIATED RISKS WITH E-PAYMENT

Although e-payment provides many opportunities for businesses, individuals, government, academics, financial service providers, it is also a fact that e-payment system is limited by a number of factors. Nancy et al, (2007) discovered that customers complain about computer logon times. People feel that they have to check and recheck the forms filled online as they are equally worried about the delay of service delivery, and being unsure that their transactions have been completed (Jun and Caic, 2001). Moreso, lack of specific laws to govern the use of e-payment system as it relates to financial service providers and the users. This pertains to unfair and deceptive trends practice by the financial service providers and unauthorized access by hackers. Larpsiri, et al (2002) argued that it is not clear whether electronic documents and records are acceptable as sufficient evidence of transactions. Websites are not a branch of the financial service institutions. It is therefore, somehow difficult for the court to define the location of the branch and decide whether they have jurisdiction (Rotchanakitumuai and Speece, 2003). Other risks associated with e-payment are lack of opportunities to socialize, job loss, etc.(Black et al, 2001).

## **E-PAYMENT CONSTRAINTS**

There are several limitations and attendant challenges barricading e-payment system. Some of them include:

- Insecurity.
- Inadequate operational facilities.
- Leads to downsizing and rightsizing.
- Ineffective telecommunication services.
- **!** Epileptic power supply.
- ❖ Access to ICT facilities.
- Repudiation of charges even when goods may have been shipped or downloaded.
- Credit cards have high possibility of frauds.
- Consumers fear of using credit cards such as having to reveal credit card information at multiple sites.
- \* Repeatedly having to communicate sensitive information over the internet.
- Unauthorized access by hackers.
- \* Relatively high fixed cost.
- Limited use only in virtual world.



- ❖ High financial risk.
- ❖ Poor mobility.
- Susceptibility to forgery.
- Some are not very familiar with the e-payment system because of poor economic condition, lack of education, etc and somehow seems intimidating to some.
- ❖ Affordability: Millions cannot afford credit cards because of low income.
- Neither the merchant nor consumer is authenticated. Merchant could be a criminal organization. Consumers on the other hand, could be using stolen or fraudulent cards.
- Cost of ICT equipment.

## POSSIBLE SUCCESS DRIVERS OF E-PAYMENT

Customers get satisfied with an e-payment system when it provides them with maximum convenience and comfort while transacting financial businesses. Several factors can possibly account for the success of e-payment system in the Nigerian economy. In some specific terms, an ideal e-payment system should possess the following attributes as averred by Ayodele (2005); Agboola (2006).

- Integrity and Reputation of services provided as transactional data already transmitted and received are irretrievable and unchanged as intended. Thus, e-payment service providers should be seen to be honest and concerned about their customers (e-payment channels users).
- Authentication of a greater height needs to attained and maintained over time.
- Confidentiality should be ensured to protect transactions from being viewed by third parties, except those
  authorized as some people fear that someone might have unlimited access to their personal financial
  information.
- Reliability, commitment, honesty, trust, accuracy at all times must be maintained to build close and long lasting relationship with customers (e-payment channels users).
- **Usefulness** and ease of use (user-friendliness, transaction speed, and convenience).
- Considerably greater level of security and safety must be attained.
- Accessibility.
- Specific monetary policy and financial system stability.
- Regulatory and supervisory authorities.
- Consumers' preferences/perceived credibility should be integrated/incorporated in the e-payment system, through adequate privacy and security policy.
- Information and Communication Technology (ICT) solutions and standards should be employed and ensured
  to meet the needs of consumers, businesses, and the economy in terms of communication, hardwares,
  softwares, security, etc.

# WHY WE NEED E-PAYMENT SYSTEM

The importance of e-payment system cannot be relegated to the background as this will no doubt help to:

- o Eliminate unsafe cash handling and curb crime rate.
- o Reduce the crowding in the banking hall.
- o Very convenient, saves time rather than having to stand too long on a queue waiting to be attended to.
- o Improves the standard of living and helps to boost Nigerian economy.
- o Improves the quality of life.
- o Enhances capacity utilization and introduces new ideas.
- o It will improve effective service delivery and increase the social wellbeing of Nigerians.
- o It will enhance competitiveness and helps to gain a competitive advantage.
- o Adds value to shareholders and stakeholders.
- Creates sustainable demand which in turn leads to increased production and resultant increase in higher revenue.
- Provides quicker and better services and rapid response to demand conditions.
- o Interest, commitment and loyalty of wealthy customers can be increasingly sustained.
- O Customers would be better informed about the recognition of new products/services that are of higher and better quality electronically.
- o Investigations and enquiries of a bank's or an organization's reputation can equally be gotten electronically to enable them compare other available options.
- o Facilitates economic and social changes as a forum and a vehicle for information sharing and communication.
- o Enhances certain value espoused by sustainable development.

## **CONCLUSION**

Conclusively, e-payment system is a welcoming innovation and as such, we should grab the opportunity as this will expose us to various multifaceted technological devices with which we can conveniently and that the



comfort of our homes, offices and even while travelling, do all banking/financial transactions without the interference of a third party and the compulsory physical presence/appearance in banking hall. It has led to the purposeful modification of technology (Harris et al, 2003). Besides, it is operable outside working hours and days with real time reporting. Technology has arguably made lives easier. It serves both transactional and informational functions (Hoffman and Novak, 1996; Teo and Pian, 2004). Again, e-payment has no doubt reduced the long queues in the banking hall as averred by Thornton and White, (2001). Financial institutions would have downsized and office space better used for more profitable ventures (Birch and Young, 1997). It has cut across distance, space and time thus avoiding several hassles. Indubitably, it has given greater freedom to individuals, businesses, etc without encumbrances.

Thus, we should therefore embrace and adopt e-payment system to improve the living standard of people and expand high speed information network as it has a wide-user's base.

## RECOMMENDATION

In order for e-payment system to be sustainable in the Nigerian economy, we wish to make the following recommendations.

- E-payment should be adopted.
- There is need for awareness creation in form of enlightenment and educating people to arouse their interest through organized training, talk shows, seminars/workshops, etc. so have a knowledge of the e-payment system channels, features and their benefits.
- Government should properly regulate the system by making laws and policies that will guide its
  operations.
- We should embrace it as it will help to reduce the stress associated with the traditional payment method.
- We should be ICT compliant as this will expose us to many things, create new ideas and broaden our horizon on several electronic transactions with ease.
- Organizations should give more support to the use of skilled and dynamic personnel to create satisfactory customers services and heighten customers satisfaction and enhance the manageability of the e-payment system.
- More separate facilities/channels for e-payment should be created to encourage home banking.

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