

Examining Issues of Electronic Payment Systems in Ghana

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Abstract
Ever since money was invented as an abstract way of representing value, new and increasingly abstract representations of value were introduced. A corresponding progression of value transfer systems, starting from barter, through bank notes, payment orders, checque and later credit cards, has culminated in electronic payment systems. Ghana payment system has been predominantly cash-based. With the rapid growth of Information and Communication Technology (ICT),E-commerce is now acting as a means of carrying out business transactions through electronic means such as the Internet. E-commerce is the most recent step in the evolution of business transactions as it replaces or augments the swapping of money or goods with the exchange of payment, financial service kiosks, biometric payments, electronic payments networks etc and as technology develops, the range of devices and processes to transact electronically continues to increases while the percentage of cash and cheque transactions continue to decrease. As electronic payment systems have rapidly spring up as a means of business transaction globally in recent times, most organization or institution such as banks and insurance companies are making good use of this technology. Ghana is no exception in using this technology. Despite the immense benefits derived from the use of this technology, it is threatened by certain issues and challenges. This paper seeks to identify those challenges or issues related to Electronic Payment Systems in Ghana.
Keywords: Challenges, Electronic Payment System, Information & Communication Technology, E-commerce**,** Cash, Bank.

1.0. Introduction

Electronic Payment is a financial exchange that takes place online between buyers and sellers. The content of this exchange is usually some form of digital financial instrument such as encrypted credit card numbers, electronic cheque or digital cash that is backed by a bank or an intermediary, or by a legal tender. In Sub-Sahara Africa, developments in Information and Communication Technology (ICT) are radically changing the way business is done. E-commerce is now thought to hold the promise of a new commercial revolution by offering an inexpensive and direct way to exchange information and sell or buy products or services. This revolution in the market place has set in motion a revolution in the banking sector for the provision of payment systems that are compatible with the demands of the electronic market place (Balachadher et al., 2000).

Traditionally, banks have always sought media through which they would serve their clients more cost-effectively as well as increase the utility of their client. Their main concern has been to serve clients more conveniently, and in the process increase profits and competitiveness. Electronic and communication technologies have been used extensively in banking for many years to advance the agenda for banking (Abor, 2004). Technology has increased and banks have revolutionized into the use of electronic innovations such as Automated Teller Machine (ATM), telephone banking, personal computer banking, internet banking, branch networking, and electronic funds transfer at point of sale like the e-ZWICH in Ghana.

This paper continues to discuss some terminology such as electronic payment system, electronic commerce, electronic money and electronic access product. In addition, some types of electronic payments, benefit of electronic payment, legal and security issue are covered.

1.1. Objectives

General Objective of the Study
The primary objective of this research is to examine issues related to Electronic Payment System in Ghana.
Specific Objective

- To identify forms of Electronic Payment Systems available in Ghana.
- To identify the problems associated with the use of electronic payment System in Ghana.

- To examine benefit of implementing and using electronic payment System.
- To asses or measure the degree of effectiveness of usage of e-payments System in Ghana.

2.0 Literature Review

2.1. Types of Electronic Payment System

A research conducted by financial and consulting firm in India, indicates that the value of retail e-payments in India is expected to reach between US$150 billion to US$180 billion by the end of 2010. "More than two thirds of all non-cash transactions payments in the United States are made electronically, with the biggest increase in electronic payments occurring between 2003 and 2006 according to a US central bank. The central bank's non-cash payments study found that about 19 billion more electronic payments were made in 2006 than 2003". Undoubtedly the last three decades have witnessed major advancement in payment technologies.

Vassiliou (2004) defines electronic payment as a form of financial exchange that takes place between the buyer and seller facilitated by means of electronic communication. According to (Cobb, 2004), the value of electronic payment goes way beyond the immediate convenience and safety of cards to a greater sphere of contributing to overall economic development.

2.2. Benefits of Electronic Payments

A study by the Federal Reserve Financial Services Policy Committee states that electronic payment transactions in the United States have exceeded cheque payments for the first time in history. The total number of electronic transactions equaled 44.5 billion dollars in 2003, while the number of cheques paid totaled 36.7 billion dollars. Obviously, consumers are becoming more comfortable in doing business electronically and using a digital medium to conduct their business.

According to (Fiallos & Wu, 2005), the arrival of the Internet has taken electronic payments and transactions to an exponential growth level. Consumers could purchase goods online and send credit card numbers across secure network payments schemes that have been developed.

Digital Money is an electronic payment technology, which can provide anonymous flexible electronic payment, like paper cash, but with added security requirements needed for Internet transactions. In a related work by (Lee, et. Al, 2003), a secure electronic cash system can guarantee anonymity of legitimate users but also provides traceability about illegally issued cash or laundered money. If illegal activity did take place, it can cancel anonymity of the digital cash in order to protect the bank. (Lee, et. Al , 2004) added that since digital money can trace double spending, and double spending protects content by exposing the double spender's identity, Digital Money can be used to deter illegal content copying and distribution by inserting tracing content factors into the digital cash payment scheme that prevents users from individual replication activity (Lee, et. al., 2004).

Digital Money can trace who is illegally reproducing and distributing copyrighted intellectual material, therefore increasing security for authors and at the same time deterring lost revenue and sales for digital media entertainment companies (Lee, et. al., 2004).

Digital Media entertainment, as well as intellectual property providers and distributors, can also implement this technology and its safety features in order to ensure greater copyright compliance between consumers (Fiallos & Wu, 2005).

According to (Cobb, 2005), efficient, safe and convenient electronic payments carry with them a significant range of macro-economic benefits. "The impact of introducing electronic payments is akin to using the gears on a bicycle. Add an efficient electronic payments system to an economy, and you kick it into a higher gear. Add better-controlled consumer and business credit, and you notch up economic velocity even further."(Cobb, 2005)

2.3. Reducing the Unbanked by E-payment

The emergence of credit, debit and prepaid card systems gives the unbanked an important option for bringing cash into the formal economy. "Prepaid cards are particularly interesting, because the funds are actually on deposit at a regulated financial institution, but the process of establishing and managing accounts is much more cost effective and less risky that traditional debit accounts for smaller levels of deposit" (Commonwealth Business Council & Visa, 2004).

Anderson-Porisch (2006) argued that technology provides the opportunities to transition the unbanked population into a banking relationship. According to her paper, "the Debt Collection Improvement Act of 1996 required that recurring federal benefit payments be made electronically through electronic funds transfer (EFT) as a low-cost account for those who cannot qualify for or afford a checking account. As a result, there has been an increase in people using this option for receiving federal benefits".

The Commonwealth Business Council also argues that payroll, pension and benefit cards can be effective entry-level instruments for banking and subsequent mainstream financial services- and they allow a

greater proportion of funds to remain within the banking system until they are spent. (Commonwealth Business Council & Visa, 2004).

In developing countries like Ghana, remittances represent the primary source of foreign exchange and generate a significant engine for consumer spending. A chunk of these remittances are held in cash and circulate within the informal economy and therefore being kept outside the banking system and do not contribute as strongly to formal economic growth as they could. Prepaid cards described above can help resolve this issue.

Banked or "un-banked", it is obvious that the active population is now hurting under the burden of the inconveniences and constrictiveness of having to endure heavy, cumbersome and usually unsafe cash-based payments in their day-to-day affairs and transactions (Ackorlie, 2009).

The use of Information Communication Technology (ICT) products to simplify and speed up financial transactions has become part of everyday life in the developed world, whereas several parts of Africa had no such experience. (Ackorlie, 2009).

2.4 Challenges of Electronic Payments

In spite of all the benefits of Electronic payments Systems, it has its own challenges even in the developed world. This paper throws more light on some of the challenges associated with the electronic payment system in Ghana. Below are some of the challenges, which were shown by other researchers of this field;

2.4.1 Security

Information security means protecting information and information systems from unauthorized access, use, disclosure, disruption, modification, or destruction. Electronic payments systems are no exception; an unsecured e-payment system may not get trust from its users. Trust is very critical to ensure acceptance from users. According to (Worku, 2010) , e-payment and e-banking applications represent a security challenge as they highly depend on critical ICT systems that create vulnerabilities in financial institutions, businesses and potentially harm customers. “It is imperative for banks to understand and address security concerns in order to leverage the potential of ICTs in delivering e-banking applications”(Worku, 2010).

2.4.2 Confidentiality

Confidentiality is defined as the protection of sensitive or private information from unauthorized disclosure (CISM Review Manual, 2006). Typically, participants involved want to ensure that communications are private (Asokan et al, 2000). Where anonymity or untraceabilty are desired, the requirement may be to limit this knowledge to certain subsets of the participants only (Asokan et al, 2000).

2.7.2 Integrity and Authorization

Integrity is defined as the accuracy, completeness and validity of information in accordance with business values and expectations (CISM Review Manual, 2006). Integrity of payment systems means that no money is taken from users unless they authorize payments. In addition, users might require not receiving any payment without their explicit consent; this is desirable when users want to avoid unsolicited bribery (Asokan et al, 2000).

2.5. Mobile Payment System in Ghana

TextnPay

The TxtnPay system is a secured mobile phone payment system that allows a user to send money to any person using a mobile phone, and also could pay for bills, buy pre-paid airtime, and purchase goods or services. The system also allows users to check their bank account balance. Many organizations in Ghana are partnering with Africa Xpress to use their TxtnPay payment system and this has minimized the traffic at their corporate offices, as consumers can now make payments on their mobile phones (Ghana News Agency, 2009). Africa Xpress also has a web based payment system, which makes it convenient for businesses and individuals to make financial related payments (Afrix Express, 2008). However, one of the setbacks to this platform is the low subscriber base, as the system is yet to gain wide acceptance, and efforts are being made by Africa Xpress to make this system accessible to as many Ghanaians as possible (Ghana News Agency).

MTN Mobile Money Transfer

MTN, a mobile telecommunication operator in Ghana, in July 2009 launched its mobile money services, which will allow its users to store and transfer money, and pay for goods from their mobile phones (Ghana News Agency, 2009). The telecommunication giant, in partnership with nine banks operating in Ghana, will allow MTN subscribers and non-subscribers alike, to perform a range of financial transactions using their mobile phone, plus the advantage of accessing their money beyond the normal banking hours in Ghana (Telecom Africa, 2009). As a new payment platform, the MTN Mobile Money also faces the challenge of gaining wide acceptability. However, it has the potential of gaining wide acceptance and capturing the unbanked population of Ghana by allowing non-bankers and even people without mobile phones to send money by visiting any of the Authorized MTN Mobile Money Transfer Merchants to make their payments (Nonor, 2009).

E-Tranzact
E-Tranzact also provides mobile payment services such as top up airtime purchase, banking services, subscription payments, bill payments and other services using a mobile phone. Registered E-Tranzact cardholders get to enjoy all these services on their mobile phones.

3. Research Methodology
This study used primary sources in a form of "consumer survey" questionnaire in obtaining the perceptions of bank customers (mostly individual customers) and interviews of bank's staffs. An extensive review of the available literature provided the foundations for further investigation. The study collected data from secondary sources such as the Internet, articles, databases, and books, and were analyzed and interpreted.
In the rare situations when official statistics are available, the recentness of the data determined its usefulness.

4. Results And Discussion
4.1 Electronic Payment Systems available in Ghana and number of people that use them.

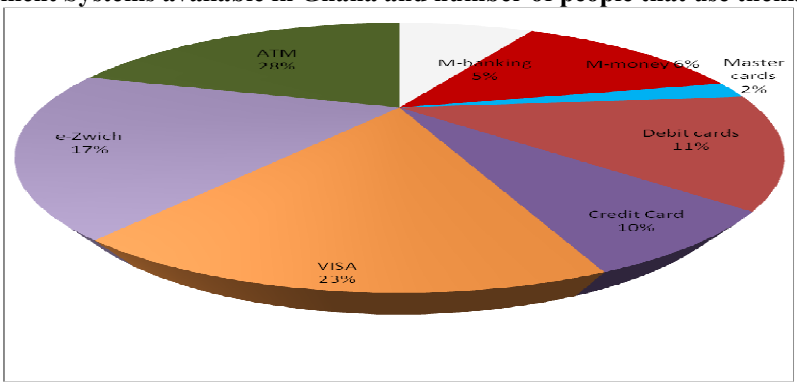

Figure 1: Forms of Electronic Payment Systems identified in Ghana from 2005 to 2013
Source: Field Study

Out of about twelve (12) e-payment systems, only 8 of them have been properly used for transaction in the Ghanaian Universal Banks, Insurance and other financial institutions as at March 2013. Those that are used in the institutions listed above are: VISA cards, e-zwich, ATM, Credit Cards, Debit Cards, Master Cards, M-Money and M-Banking.

4.2. Problems associated in use of electronic payment System in Ghana.

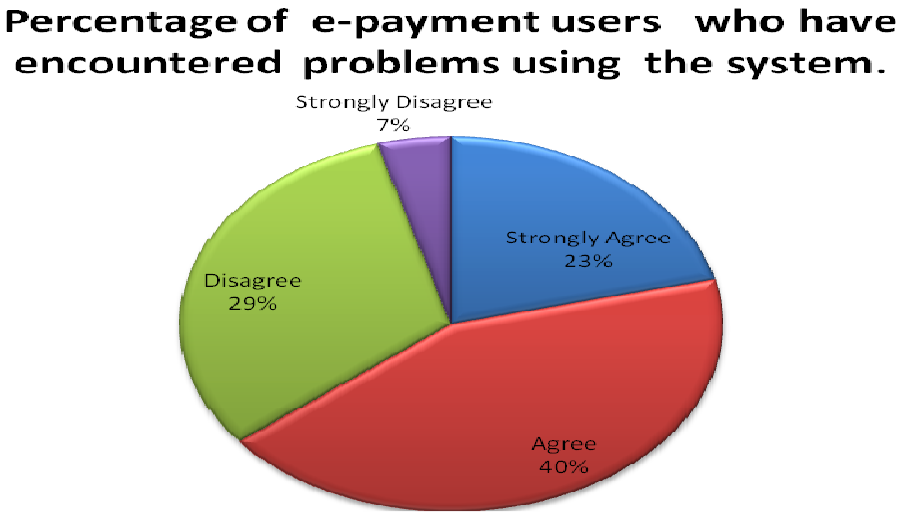

Figure 2: Problems associated in use of electronic payment System in Ghana
Source: *field survey*

After interviewing the some selected users of the electronic payment system in Ghana and analyzing the findings, the results obtained indicates that twenty nine percent (29%) of the population disagree due to the problems and the frustrations that occur during simple transactions, because most of transactions save a lot of money for some of the business owners and the actually use the e- payment system, forty percent (40%) of them agree to the problem it creates for them, and twenty three percent (23%) strongly disagree due to the effect it has on their business and few people that had the technical knowhow seven percent (7%) strongly disagree to the

listed problem face by the e-payment.

4.3.1 Interview Results

Based on the interview conducted for this research, it was observed that most of the banks are using Electronic Payment as a mode of daily banking although the traditional system is still in use for business operations.

Mr. Stephen Amoako the Relationship Manager of Ecobank Tamale Branch, said, Ecobank is using information technology as a backbone of the bank's daily business operation. He made mention that electronic payment system is playing a key role in customers' daily banking transactions. The low patronage of the electronic system was however attributed to reasons including:

Acceptance: It is a bit difficult to educate and convince the Ghanaian populace to use Electronic Systems for their daily business banking activities. Ghanaians are used to handling physical cash for their day to business transactions than the use of electronic system.

General illiteracy of electronic banking products: Most Ghanaians do not understand and appreciate the benefits of electronic banking to individuals and the society as a whole. As a result they have been reluctant and slow to adjust to the new economic reality leading to poor patronage, lost opportunities and diminished competitiveness.

Ignorance: People are not aware of the benefits of Electronic payments to the individual as well as the economy. They are not motivated enough to use other electronic products.

Limited availability of electronic transaction platforms: The few individuals who are willing to use electronic cards have difficulty in finding avenues to use electronic cards. They sometimes get frustrated and convert their money to cash in purchasing items instead of using their cards.

4.3. Benefits of implementing and using electronic payment System

Approximately how much has the financial institution spent to repair effects of electronic payment since introduction of modern E-payment systems from 2005 - 2013

Table 1: Range of Loss occurrences

Year	*Range of Loss (GH¢)*	*Percentage (%)*
2007	*0 – 1,000*	*31*
2008	*1,001 – 5,000*	*10*
2009	*5,001 – 10,000*	*23*
2010	*10,001 – 20,000*	*27*
2011	*20,001 – 50,000*	*5*
2012	*Above 50,000*	*2*
Total		*100%*

Source: field survey

Table 4.2 also shows the fact that 10% of the financial institutions loss less than GH¢1,000 in year 2005. In year 2006, 2007, 2008, 2009 the banks spent between GH¢1,0001 to GH¢50,000 with a percentage of 31%, 10%, 23%, and 27%,5% and 2% respectively. No financial lost above GH50, 000 in year 2010 for the repairs of their e-payment damages.

4.5 To asses or measures the degree of effectiveness of usage of e-payments System in Ghana.

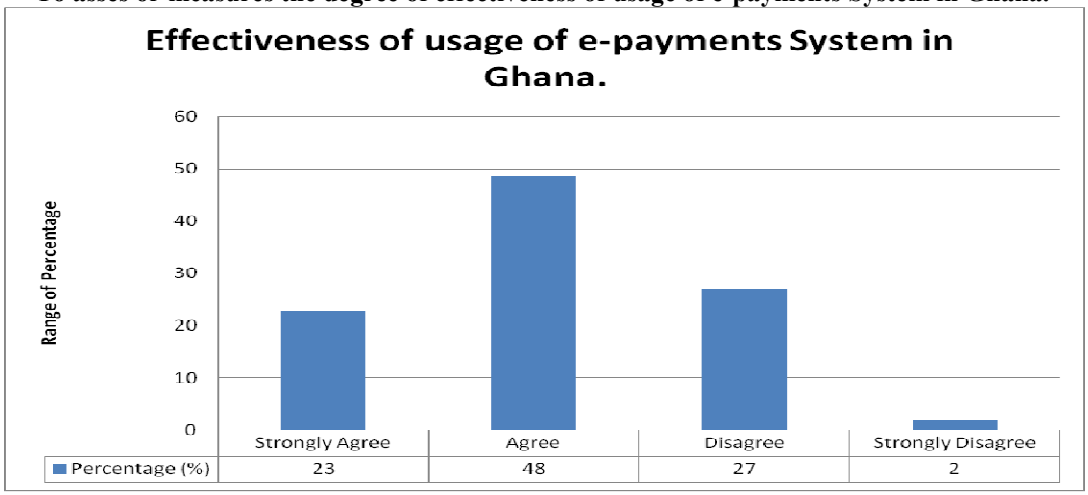

Figure 3: Assessing or measuring the degree of effectiveness of usage of e-payments System in Ghana.
Source: Field Study

The advent of current technology such as Internet use is developing fast and is constantly bringing new dimensions to our daily life. The financial intuitions and individuals in Ghana are some of those sectors that has benefited from the evolving technology by the introduction of Electronic banking (E-banking) systems, which provide easy access to banking services. Despite the problems encountered using the e-payment system spotted above there are enormous effective usage of e-payments System in Ghanaian financial institutions, forty eight (48%) agreed that the e-payment has contributed enormously to the grove of their business. and twenty three percent (23%) strongly agree, twenty seven percent (27%) disagreed, and two percent (2%) strongly disagreed to fact that e-payment is the way to the business success.

4.6. Problems associated in use of electronic payment System in Ghana

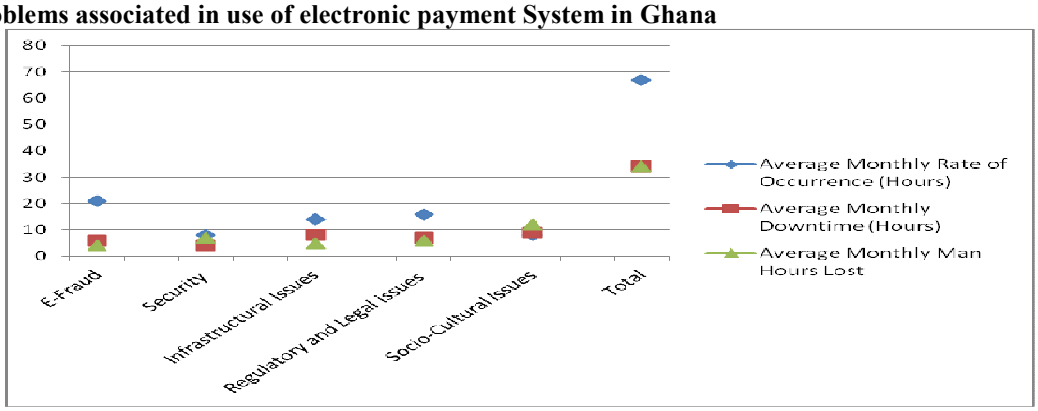

figure 4: problems associated with the use electronic payment system in Ghana
Source: field survey

The Ghanaian financial institutions tend to be subjected to various problems associated with e-payment, downtime or breakdown, and personal hours lost affecting their activities. An average of ninety-eight (59) represents monthly hour's rate of occurrence from the usual threats, seventy (48) monthly downtime hours on average, and forty nine (39) average of monthly man hours lost.

5.1 Conclusions

This research showed that there are electronic payments systems available in Ghana such as the Debit Card, the Mobile Money Transfer System, the Telephone Banking and the Credit Card. However, there is limited infrastructure in relation to Information Communication Technology (ICT) in the country. Therefore all forms of electronic payment systems depend largely on the availability of an efficient ICT infrastructure where reliable network connectivity, durable hardware and high expertise in ICT are available. Government and stakeholders in the communication sector must increase expenditure on ICT to ensure that the entire country is covered with a reliable technology. This will facilitate the introduction of more electronic payment system options and also encourage many people to adopt them for electronic payments. It will also reduce the burden on the existing non-electronic payment options as well as the infrastructure use to conduct such payments

5.2 Recommendation

Recommendations made based on the finding of this research are discussed below. Even though there are electronic payment systems in Ghana, the existing ones are few. There is the need to introduce more electronic payment modes in the country. Recommendations based on the finding of this research are discussed below.
Cost Reduction Government needs to ensure that the cost of telecommunications, hardware and software are made cheap, which will involve examining existing taxes and import duties. New technology and changes in the banking laws can produce change.

Open Barrier there is the need for the government to remove barriers to innovation, including regulatory barriers to pave way for rapid development of the electronic payment systems in Ghana. The level of adoption of the electronic payment card is too low in the country. There is the need to put in place measures to ensure that many people adopt the electronic payment card for electronic transactions.

Education this will help users and potential users to know the benefits that come with the adoption of the e-zwich. Such campaigns must be sustained for a long time to ensure that all sections of the populace are made aware of the nature and use of the e-zwich smart card system.

Trust lacks of trust in electronic payments discourage consumers from adopting them for payments. There is the need for banks and other service providers to educate consumers about all of their payment system options and

the pro and cons of each. Consumers will need to be informed about the potential liability for the use of.

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