

Challenges of Electronic Payment Systems in Ghana: The Case of e-ZWICH

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Introduced in Ghana in 2008, the e-ZWICH is Africa's first biometric electronic payment system. Though it was introduced four years ago to promote a cashless society, the level of awareness and patronage seem to be low and some have even predicted its failure in the near future. It is against this background that the study has been conducted to unravel the challenges and prospects associated with the e-ZWICH. The main task of this paper is to examine the challenges associated with the use of e-ZWICH in retail payments. Semi-structured questionnaires were administered to fifty (50) e-ZWICH card bearers and thirty (30) non e-ZWICH card bearers. The Kendall's coefficient of concordance and the Kruskal Wallis test were employed to analyse data from respondents. The study revealed a number of challenges that are militating against the success of the e-ZWICH service. Among these are link failure, frequent breakdown of machines, slow process of service delivery, long queues and inaccessibility of the point of sale devices before and after banking hours. The findings show that despite these challenges, the prospects of the e-ZWICH payment system are great among both users and non-users. Based on the findings, it is recommended that sensitisation workshops should be organised by the Ghana Interbank Payment and Settlement System to encourage Ghanaian companies and individuals and in particular the rural folks to patronise the service.

Keywords: challenges, e-ZWICH, prospects, electronic payment system

Introduction

In sub-Saharan Africa, developments in information and communication technology (ICT) are radically changing the way business is done. Electronic 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). Technology has increased in importance in Ghanaian banks and shops. Traditionally, banks have always sought media through which they would serve their clients more cost-effectively as well as increase the utility of their clientele. 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). Years have gone by, technology has increased (and is still increasing) and banks in their pursuit to offer convenient and improved services to their clients have revolutionised 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.

The e-ZWICH smart card was introduced in April 2008 and has been operational since then and seeks to reduce the risk at which ATM card theft was on the ascendancy a while ago. The Ghana Interbank Payment and Settlement System (GHIPSS) Limited, an establishment of the Bank of Ghana, is the issuer of the e-ZWICH smart card. E-ZWICH is the brand name for the common platform (the National Switch) that links the payment systems of all banks, savings and loans and rural banks in Ghana. The e-ZWICH smartcard is a new very secure way of paying for goods and services throughout the country based on biometric (particularly finger print) identification. E-ZWICH allows smartcard holders and merchants to perform funds load, spend and settle various transactions both online and offline. Most post offices are also currently hooked onto the national platform. The payment of school fees in secondary and third cycle institutions is now being done using e-ZWICH card. Because e-ZWICH links the payments platforms of all banks, savings and loans and rural banks, the e-ZWICH smartcard (regardless of the issuing bank, savings and loan company or rural bank) can be used in other bank's ATMs and POS in branches of rural banks and savings and loans companies and retail merchants for payment and cash withdrawal. Cardholders only require authenticating a transaction with their fingerprints. This eliminates the problem of theft associated with the card transaction authenticated through the use

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of PINS. A person does not need to be a customer or have an account with a bank to have the e-ZWICH smart card (Marc-Jordan, 2009).

Payment for goods and services in Ghana is characterized by long queues, long distance travelling, armed robbery, time wasting which generally affects business activities and ultimately economic development (Sarpong, 2003). Cost involved in the re-printing of damaged notes affects economic development. Settling utility bills, payments for goods and services and money transfer have been a major headache for individuals and firms in Ghana resulting in a decline in business activities and huge debt to most of the utility providers. In fact, the country has not yet realized the full benefits of the technological advances in electronic payments such as the use of cards, ATMs, the internet and mobile phone (Sarpong, 2003).

The payment and clearing system in the country is underdeveloped. For instance, cashing cheques drawn in Accra against accounts held in banks in Accra could take three days while cheques drawn on different regions can take several weeks. The banking halls continue to be immersed with long queues as people come in to collect their monthly salaries and wages. Many people have been holding huge sums of money outside the banking system as a result of the ordeal one has to go through before withdrawing money or making payments. However, faced with such enormous problems in the payment process, only few solutions have been introduced so far in Ghana to solve them. A case in point is the introduction of the e-ZWICH by the Bank of Ghana. Very few studies have been conducted to assess the challenges customers are facing in the use of the e-ZWICH smart card. The only one identified so far is by Kumaga (2010) who examined the challenges involved in the implementation of the e-ZWICH smart payment system. The author found the challenges to the use of the e-ZWICH to be lack of acceptance, ignorance, network issues and the fact that the use of the electronic card has the potential of depriving sales persons of tips. The paper however fails to show how the problems are ranked so that policymakers can know what the priority issues are to enable them roll out interventions to boost the use of the e-ZWICH. This paper provides a ranking of the challenges and in addition to that assesses the prospects to the adoption of the e-ZWICH smart card. This research is significant in a number of respects. The study will enable the Bank of Ghana and or the government to evaluate whether the e-ZWICH is serving the purpose of its introduction. It will bring to bear the problems customers and service providers face in the use of the e-ZWICH for appropriate measures to be taken by the implementing authority and other stakeholders to keep the dream of making Ghana a cashless society alive. It will also serve as a

reference point for further studies or research by the academia into the issues of e-ZWICH in the country and other parts of the world.

The main task of this paper is to examine the challenges associated with the use of e-ZWICH in retail payments. More specifically, the paper examines the rating of the efficiency of various payment systems by users of e-ZWICH, compares the preference of e-ZWICH to other payment systems (ATM, Mobile money and Teller) in business transactions, and eventually identifies the challenges and prospects associated with e-ZWICH.

Literature Review

The revolution of e-payment as captured by Benjamin Graham (2003) in his work "Evolution of Electronic Payment" started in 1918, when the Federal Reserve Bank first moved currency via telegraph. However, it was not until the Automated Clearing House (ACH) was set up by the U.S Federal Reserve in 1972 that electronic currency became widespread. This provided the U.S treasury and commercial banks with an alternative to processing cheque. Following this development, researchers over the world have undertaken research, symposia, journal articles, and lectures to evaluate the system of e-payment. Early work by Ferguson (2000) looks at how businesses and existing industries can be improved or enhanced by using the internet or electronic devices.

Using the Federal Reserve's 1995 Survey of Consumer Finances (SCF), Snorckel and Kwast (1995) analyzed the effect of demographic characteristics on the likelihood of e-payment instrument usage by households. Humphrey and Hancock (1997) have provided an extensive survey of the payment literature. Carrow and Stanten (1999) used a logistic regression model to investigate preferences of consumers for debit cards, credit cards and cash for gasoline purchase. In addition, the work by Vartanian (2000) looked at the future of e-payments. The e-payment literature does not pertain only to Europe. The work done by Balachandher et al. (2000) looked at e-banking in Malaysia. Joshua Abor (2004) researched on technological innovation and banking systems in Ghana. As evidenced by Balachandher et al. (2000) and Joshua Abor (2004), technological advancement has revolutionized e-banking in Asia and Africa since people in these areas have embraced e-banking services which have contributed positively to the growth of the banking industry.

A number of works have also concluded that information technology has appreciable positive effect on banking productivity; cashier's work, banking transactions, bank patronage, bank services delivery and customer services (Balachandher et al. 2001; Hunter, 1991; Yasuharu, 2003). In effect, it enhances savings mobilization and financial

intermediation. Efficient payment systems rely on non-cash payments and an efficient and reliable payment system facilitates economic development (Annon, 2003). Furthermore, the work by David Bounie and Pierre Gaze (2004) looked at payment and internet issues. In October 2005, Wondwossen, Tsegai and Kidan (2005) completed their work on e-payment challenges and opportunities in Ethiopia. Baraghani (2004) also examined factors influencing the adaption of internet banking. Their works revealed that, consumers' behaviours are consistent with their preferences, which vary but may include convenience, incentives, control, privacy, security, and personal involvement. The study showed that, one of the significant impacts pertaining to payment instrument choice on consumer decision-making is consumers' financial positions and the nature of specific transactions and banks need to play a leading role in influencing the perception and thereby the attitude and behaviour of current and potential internet banking users respectively.

It is important to note that new payment types are continually being discovered and there are additional methods that exist or are being continuously developed. Some common types of e-payment systems are cards (ATM, electronic purses/wallets, electronic funds transfer at point of sale, credit cards, debit cards, smart cards.), mobile money transfer, internet payment, and electronic cheque. Major security, infrastructure, legal, regulatory and socio-cultural challenges have characterized the e-payment systems. In Africa, e-payment is characterized by widespread challenges. Poor telecommunications infrastructure, limited readiness by banks, behavioural constraints, inadequate legal and regulating framework, low level of credit card access are among the constraints that have hindered the progress of e-payments (Wondwossen et al., 2005).

According to Kumaga (2010, p.22) "Electronic payments in most African countries is very limited in use or virtually non-existent". In most African countries the required infrastructure, legal and regulatory framework for electronic payments are lacking (Tadesse & Kidan, 2005). In particular, e-payments infrastructure such as internet and mobile networks are not widely available in Africa. Moreover, banks and other financial institutions are not adequately automated to enable e-banking and e-payment (Kumaga, 2010). In an article entitled "Digital Money in a Digitally Divided World" Basse (2008) revealed the challenges to the adoption of e-payment systems in Africa. The author put the challenges into three categories namely "...the infrastructure, regulatory, cultural-cum-human dimensions". In the author's view the infrastructural challenge is the most paramount. Infrastructural challenges relate to ICT accessibility, affordability, networks, connectivity and usage. Related to these are issues of interconnectivity,

network failure, low bandwidth, high cost of connectivity, and frequent power outage. This presupposes that the future of e-commerce in Africa is intrinsically linked with investments in IT infrastructure. This undoubtedly requires African governments and other stakeholders to invest hugely in IT infrastructure and to create a conducive environment for the same.

In the particular case of the challenges of the e-ZWICH in Ghana, research is rather scarce. The only one identified so far is by Kumaga (2010) who examined the challenges of the new payment system. Kumaga (2010) explained that lack of acceptance, ignorance, network lapses and lack of tips are the major challenges to the adoption of the e-ZWICH. In the author's view Ghanaians generally feel better carrying cash than carrying money in the form of a chip thus making it difficult for them to accept electronic payment systems in general and the e-ZWICH smartcard in particular. The author expounded further that a number of Ghanaians seem not to be aware of the benefits of electronic payment systems and for that matter are not motivated to adopt the technology.

In the case of network lapses the author explained that though the e-ZWICH payment system works offline some online connection is required by POS devices to make settlements at the end of the day. The author added that "Some sales people are of the opinion that with the introduction of e-payments they will be losing out on getting tips from customers and are thus reluctant to use the POS devices" (Kumaga, 2010, p 42). Kumaga's study however still left some gaps unfilled. For instance, the paper failed to indicate how the challenges are ranked for the purpose of informing policy prioritisation; did not assess the prospects of the payment system and; was concentrated at the metropolitan capital of Ghana where problems faced by users will be far different from those faced by users in the remote parts of the country. This current study adequately fills these gaps by providing a ranking of the challenges to the adoption of the e-ZWICH to guide policy interventions, assessing the prospects of the e-ZWICH among users and non-users in one of Ghana's most deprived regions.

The Study Area

Wa, the Upper West Regional capital is the study area. It was formally part of the Upper Regions serving as a district. Under the decentralization policy, the Provisional National Defence Council (PNDC) government in 1983 divided the region into Upper West and Upper East Regions. The Wa district was accredited a municipal status under legislative instrument 1800 and was split into three (3) districts in 2004; Wa East, Wa West and Wa Central. The Wa municipal assembly is the only municipality out of the nine (9) assemblies in the

Upper West Region. The municipality is made up of three (3) major ethnic groups, the Walas, Sisaalas and Dagaabas and other minor ethnic groups. The Sisaalas and Dagaabas are mostly Christians while the Walas are predominantly Muslims. The region covers a geographical area of Approximately 18,478 square kilometers (km²). This constitutes about 12.7% of the total land area of Ghana. The total population of the region is 576,583. This represents three (3%) per cent of the national population. Wa municipality has the largest population of 224,066 representing 38.9% of the region's population.

Methodology

Primary data were collected on types of electronic payments systems and the opportunities and challenges facing customers and service providers. The study dealt with e-ZWICH service providers such as Stanbic Bank, Ghana Commercial Bank and National Investment Bank as well as users and non-users of e-ZWICH in the Wa Municipality. The total sample size was 83. The breakdown of the sample size is as follows; one (1) each for heads of management information units for three banks providing e-ZWICH services, fifty (50) e-ZWICH card bearers and thirty (30) non e-ZWICH card bearers. The study utilized probability sampling techniques of data collection. The population was stratified into two main strata, thus, the e-ZWICH card bearers and non e-ZWICH card bearers. After the stratification, simple random sampling technique was used to select 50 e-ZWICH users and 30 non-users of e-ZWICH. Key- informant Interview technique was used to gather data from officers in charge of e-ZWICH.

The study utilized both quantitative and qualitative methods of data analysis. Under the quantitative, descriptive statistics was used. Data collected was coded, edited and tabulated using statistical package for social sciences (SPSS) and Microsoft excel. The Kruskal Wallis ranking method was used to analyse the rating of the efficiency of various payment systems by users of e-ZWICH. In the analysis of the challenges associated with e-ZWICH, Kendall's Coefficient of Concordance was employed to establish the degree of agreement among the respondents with respect to their responses on the challenges associated with e-ZWICH. Kendall's coefficient of concordance was used to analyze the degree of agreement between respondents on the following challenges of e-ZWICH in Wa: frequent breakdown of machines, long queues, link failure and slowness of transactions. Kendall's formula is:

$$W = \frac{12[\sum T^2 - \frac{(\sum T)^2}{n}]}{nm^2(n^2-1)}$$

Where; T = total sum of ranks for each challenge

being ranked, n = number of challenges being ranked, m = number of respondents

Hypothesis tested is:

Ho: There is no agreement among respondents on the challenges of e-ZWICH in Wa.

H₁: There is agreement among respondents on the challenges of e-ZWICH in Wa.

The decision rule is that, if the computed value of F is greater than the critical value, reject the null hypothesis and conclude that there is agreement among respondents on the challenges of e-ZWICH in Wa and vice versa.

Kruskal Wallis test was employed to determine the rating of efficiency of various payment systems by users of e-ZWICH using efficiency parameters such as cost effectiveness, speed, security, accessibility and reliability. This was done through the use of the Kruskal Wallis formula:

$$H = \frac{12}{N(N+1)} \left(\frac{R_1^2}{n_1} + \frac{R_2^2}{n_2} + \frac{R_3^2}{n_3} - \frac{R_4^2}{n_4} \right) - 3(N+1)$$

Where;

R₁ = Sum of ranks for sample 1 (e-ZWICH), n₁ = Size of sample 1 (e-ZWICH).

R₂ = Sum of ranks for sample 2 (ATM), n₂ = Size of sample 2 (ATM).

R₃ = Sum of ranks for sample 3 (mobile money), n₃ = Size of sample 3 (mobile money).

R₄ = Sum of ranks for sample 4 (Teller), n₄ = Size of sample 4 (Teller).

N = n₁ + n₂ + n₃ + n₄

The following hypothesis is tested:

H₀: There is no difference in the rating of the efficiency of payment systems by e-ZWICH users.

H₁: There is difference in the rating of the efficiency of payment systems by e-ZWICH users.

With degrees of freedom (df) k-1, where k is the number of items (payment systems) being compared. The decision rule is that, if the test value is greater than the critical value, reject the null hypothesis and if the test value is less than the critical value, do not reject the null hypothesis.

Results and Discussion

Rating of the efficiency of various payment systems by users of e-ZWICH

Users of e-ZWICH were made to rank the efficiency of various payment systems based on which the Kruskal Wallis ranking method was employed to test the following hypothesis.

H₀: There is no difference in the rating of the efficiency of payment systems by e-ZWICH users.

H₁: There is difference in the rating of the efficiency of payment systems by e-ZWICH users.

With degrees of freedom (df) k-1 (4-1), the chi-square value from the chi-square table at 5% significance level is 7.81. The empirical chi-square value is 14.13.

Table1. Rating of payment systems by e-ZWICH users.

Efficiency parameters	Payment systems				
	ATM	e-ZWICH	Mobile money	Teller	Total
Cost effectiveness	10	31	0	9	50
Accessibility	15	13	2	20	50
Security	6	28	0	16	50
Speed	7	35	1	7	50
Reliability	8	14	1	28	50
Total scores	46	120	4	80	250

Since the test value is greater than the critical value ($14.13 > 7.81$) we reject the null hypothesis that there is no difference in the ratings of the efficiency of payment systems by e-ZWICH users. This means that there is no enough evidence to support the null hypothesis. Therefore there are differences in the ratings of the efficiency of payment systems by e-ZWICH users.

From table 1, it will be appropriate to conclude that users of e-ZWICH rate e-ZWICH first followed by Teller then ATM and lastly Mobile money in terms of efficiency parameters such as cost effectiveness, accessibility, security, speed and

reliability. The rating scores are as follows; 120 for e-ZWICH representing 48%, 80 for Teller representing 32%, 46 for ATM representing 18.4% and 4 for Mobile money representing 1.6%.

Preference of e-ZWICH to ATM, mobile money and teller by e-ZWICH users

The study employed frequency distribution to determine the preferences of e-ZWICH users in terms of the various payment systems. The findings are illustrated in table 2 below.

Table 2. Respondents' electronic payment system preferences.

	Yes	Percentage (%)	No	Percentage (%)
Do you prefer e-ZWICH to Teller?	34	68	16	32
Do you prefer e-ZWICH to ATM?	24	48	26	52
Do you prefer e-ZWICH to Mobile money?	37	74	13	26

From table 2, 34 (68%) prefer e-ZWICH to Teller and 16 (32%) prefer Teller to e-ZWICH. It can further be observed that 24 (48%) prefer e-ZWICH to ATM and 26 (52%) prefer ATM to e-ZWICH. Also, 37 (74%) prefer e-ZWICH to Mobile money and 13 (26%) prefer Mobile money to e-ZWICH. It can therefore be concluded that, among e-ZWICH users, e-ZWICH is preferred to Teller and Mobile money but ATM is preferred to e-ZWICH.

Challenges of e-ZWICH

The study revealed a number of challenges that are militating against the success of the e-ZWICH service. Among these are link failure, frequent breakdown of machine, slow process of service

delivery and long queues. Others include inaccessibility of the POS device. Users do not have access to the POS device before and after banking hours as well as weekends thereby preventing the e-ZWICH customer from making utmost use of the e-ZWICH smart card. Although, most of the banks have the POS device they cannot provide the service due to malfunctioning of the devices. Coupled with these is the fact that aside the banks and University for Development Studies (UDS) no other institution and/or shop has the POS device in the Wa Municipality. The calculations below test whether there is agreement among respondents on the challenges of e-ZWICH in Wa using the Kendall's coefficient of concordance.

Table 3. Challenges of e-ZWICH.

Challenges	Total sum of rank for each challenge being ranked(T)	T ²	Ranks
Link Failure	63	3,969	1 st
Frequent Breakdown of Machine	122	14,884	2 nd
Slowness of Transaction	147	21,609	3 rd
Long Queues	162	26,244	4 th
Total	494	66,709	

The W value is 0.456. The computed F-statistic (test value) is 41.074 while the critical F-value is 2.600. We reject the null hypothesis since the test value (41.074) is greater than the critical value (2.600). The implication is that there is agreement among respondents on the challenges of e-ZWICH in Wa.

Link Failure

From table 3, respondents ranked link failure as the most serious challenge that confronts them in their business transactions with e-ZWICH. This concurs with the finding of Kumaga (2010) who espoused that network failure is crippling the use of the e-ZWICH. Because the e-ZWICH network is connected to the telecommunication networks, anytime there is a failure in the telecommunication network it automatically affects the e-ZWICH network making it difficult for e-ZWICH users to execute transactions.

Frequent Breakdown of Machines

Respondents ranked breakdown of machines as the second most pressing challenge that confronts them in their business transactions with e-ZWICH. The reason being that there is inadequate education on the use of stand-alone machines leading to frequent breakdown of machines. Due to the fact there are few e-ZWICH stand-alone machines in the municipality, there is so much pressure on the few

e-ZWICH machines available. This coupled with poor maintenance of e-ZWICH machines worsen the situation.

Slowness of Transaction

Slowness of transactions was ranked as the third constraint because it is seen by respondents as not being a serious challenge (compared to link failure and machine breakdowns) since the processes involved in e-ZWICH transactions are few and the machine is quite fast though users think it could be faster.

Long Queues

Long queues were ranked as the least challenge by respondents. Though e-ZWICH customers are given preferential treatment and hence do not join the usual queues in the bank one still has to queue to be served. This problem is aggravated by rampant link failures.

Prospects of e-ZWICH

The research sought to establish the number of e-ZWICH customers who will continue to use the service in the next five (5) years and non customers of e-ZWICH who are interested in becoming customers next year. This will in effect ascertain the future of e-ZWICH hence its prospects.

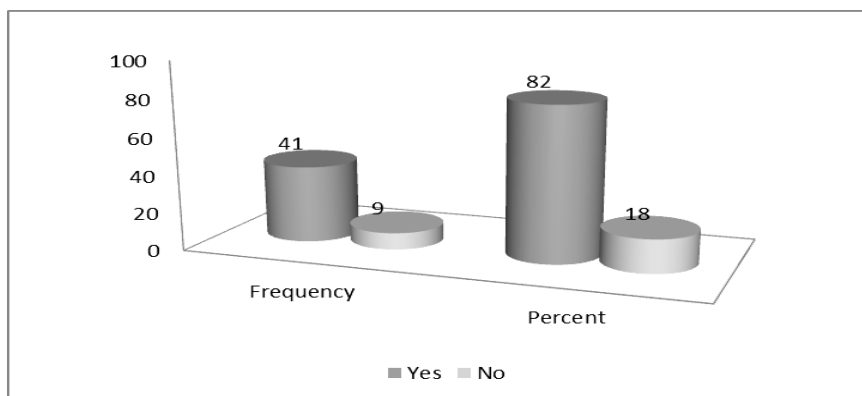


Figure 1. Number of users that will continue to use e-ZWICH in the next five years.

As indicated by figure 1, the number of users that will continue to use e-ZWICH in the next five years were 41 out of 50 respondents representing 82% while the remaining 9 representing 18% responded in the negative. Thus the majority of e-ZWICH users pledge their loyalties to e-ZWICH irrespective of its challenges at least in the next 5 years. These assertions were born out of the

confidence they have in e-ZWICH due to its cost effectiveness, security, reliability and accessibility among others. Below is figure 2 illustrating non-users who want to join e-ZWICH service next year. Non-users were first asked to indicate whether they will join e-ZWICH next year despite the current problems with the e-ZWICH system. The responses are provided in figure 2 below.

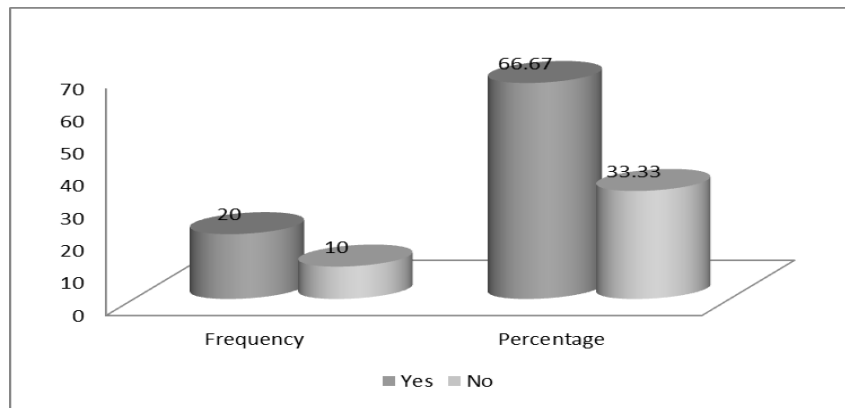


Figure 2. Prospects of non-users with respect to e-ZWICH.

Out of 30 respondents, 20 (66.67%) will like to enrol as e-ZWICH users next year whether challenges are resolved or not while 10 (33.33%) are not willing to join the e-ZWICH service. Also, non-users were asked whether they will enrol as e-ZWICH users next year if the current concerns they have about the e-ZWICH are resolved. The responses are shown in table 4. The responses provided show that as many as 80% of non-users will like to be e-ZWICH users if its challenges are solved.

Table 4. Non-users who want to join e-ZWICH next year if challenges are resolved.

	Frequency	Per cent (%)
Yes	24	80
No	6	20
Total	30	100

Thus, the prospects of the e-ZWICH payment system are great both among users and non-users. Therefore, steps must be taken by GhIPSS, banks and other financial institutions, shops and all other stakeholders to ensure that these prospects are properly tapped to facilitate the attainment of the vision of a cashless society in Ghana. It is clear that most residents in Wa are willing to embrace the new payment system; they are only being hindered by some constraining forces some of which have been identified earlier. If these constraints are removed from their way they will gladly embrace the e-ZWICH making them as individuals and Ghana as a whole better off.

Perspectives of Service Providers

The service providers also identified some prospects with regards to e-ZWICH and further predicted the future of the system. Some of the opportunities of e-ZWICH identified include fast, reliable and safe business transaction and bringing banking services to the door step of the people at the comfort of their homes and communities. The study also revealed

that there are plans in the pipeline to boost the e-ZWICH service delivery. These plans include upgrading the system, paying salaries through e-ZWICH, and provision of e-ZWICH stand-alone machines at vantage points to improve network connectivity, widen coverage and provide easy access of e-ZWICH to the general public.

On the future of the e-ZWICH, the service providers unanimously agreed that the system has a bright future. They indicated that its success depends largely on the managers of Ghana Interbank Payment and Settlement System (GhIPSS), various stakeholders such as the banks, financial and non-banking financial institutions that provide e-ZWICH services as well as consumers.

On the part of GhIPSS, there is the need to not only encourage and motivate institutions, banks, enterprises and shops to acquire the POS devices to provide e-ZWICH services to the general public but also make conscious efforts to educate the public on the benefits they stand to gain from using the system. In addition, the e-ZWICH stand-alone machines should be made more accessible to the general public. Banks should be encouraged and given the chance to take e-ZWICH service as a core product. Institutions should patronise the point of sale device for their transactions and the general public should embrace the change so that Ghana will become a cashless society.

Challenges that confront service providers include; connectivity, impatience of customers, service pressure due to inability of other banks to recognise it as a core product, card blocking due to the usage of the emergency finger, defect of cards as a result of customers not handling it well and difficulty in operating stand-alone e-ZWICH machines.

Conclusion

Industries and businesses all over the world are utilising the internet. This is because electronic 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 a payment system that is compatible with the demands of the electronic market place. In view of this, e-ZWICH was introduced in 2008 by GhIPSS mainly to promote a cashless society in Ghana. Payments for goods and services is characterised by long queues, long distance travelling, armed robbery, time wasting and high cost of business transactions which generally affect economic development. It is in view of this that e-ZWICH was introduced to fill these gaps.

There are many challenges confronting the system in the Wa Municipality. These challenges were identified by respondents and service providers. The general challenges include link failure, frequent breakdown of machines, slow process of service delivery and long queues respectively in order of importance. The service providers also identified challenges such as network connectivity problems, impatient customers, defects with regards to customers' cards due to improper handling, and low benefits to banks as a result of banks operating the service on behalf of GhIPSS.

The e-ZWICH service is endowed with several prospects and the survey revealed that 41 out of 50 respondents (users) representing 82% accepted to be loyal to e-ZWICH irrespective of its challenges while 20 out of 30 non-users representing 66.67% agreed to join or register for e-ZWICH next year. The e-ZWICH service providers identified benefits such as secured, convenient and fast service of the e-ZWICH and concluded that the future of e-ZWICH is bright. They observed however that more needs to be done on the part of managers of GhIPSS to guarantee its success. From the forgoing analyses, there is empirical evidence to support the fact that, e-ZWICH is with several benefits though it is bedevilled with some challenges. If efforts are made to solve these challenges, it will promote a cashless society with its concomitant multiplier positive effects.

Recommendations

In order to increase patronage of e-ZWICH, GhIPSS should intensify their education on how to operate the stand-alone machine. Measures such as sensitisation workshops should be organised by the GhIPSS to encourage Ghanaian companies and individuals and in particular the rural folks to patronise the service. To improve connectivity, GhIPSS should develop alternative network lines rather than solely relying on telecommunication networks which have frequent link failures.

Banks and other non-bank financial institutions should show interest and take up e-ZWICH as a core

product. Financial institutions should step-up their customer relations in order to motivate and encourage current customers to continue to patronise the service. Particularly, Rural banks should get involved in delivering e-ZWICH services in order to bring it to the door step of the rural folks. Currently, none of the rural banks in Wa provides the e-ZWICH service. Banks and other financial institutions in their own way should embark on educational campaigns to sensitize the public about the benefits of e-ZWICH. This will help create a cashless society, reduce the incidence of card theft, and mitigate long queues in transacting businesses among others.

Educational institutions should help increase patronage of e-ZWICH by making it possible for students to pay fees through e-ZWICH and also collaborate with GhIPSS and financial institutions so as to erect the e-ZWICH stand-alone machines on their campuses. Enterprises should also acquire the POS device to make it possible for customers to pay for goods and services using their e-ZWICH cards. It is vital that all stakeholders do everything possible to ensure that the e-ZWICH does not become one of the many innovations like "sika-card" of SG-SSB bank that could not stand the test of time.

Acknowledgement

I would like to thank Sampana Leonard Zoot, Gakpo Esther, Doh-Adanu David, Nketiah Augustine and Tibla Rhoda Wumborima for assisting in the collection of data for this work and for all their efforts in my support.

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