



Assessment of challenges and opportunities of e-payment in Sudan

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ABSTRACT

Electronic payment is one of the ways to pay off all financial obligations electronically. It is also a system provided by financial and banking institutions to make the electronic payment process safe and easy, and this system is subject to laws, which make all financial movements in strict confidentiality, to ensure the protection and safety of the user and avoid risks of carrying money that could be stolen and endanger the holder. Therefore, they are closely related to information and communication technology (ICT), which complement their electronic procedures.

This paper discussed the impact of e-payment and the experiences of some countries in the field of electronic payment and also mentioned the experiences of Sudan and the payment systems currently available in both traditional and electronic types. In addition, the challenges facing the spread of electronic payment in all technical and non-technical aspects.

Also, attempts to study mainly the opportunities and challenges of e-payment in Sudan and find appropriate solutions to reduce all problems that face us in e-payment to make Sudan more sophisticated and use for technology.

The results of this paper included the obstacles of electronic payment and discussed the reasons for these obstacles and what are the basic methods and requirements that we need to develop the payment systems and overcome

the challenges and obstacles facing the technology and the future of electronic payment.

KEYWORDS: Electronic payment, Mobile banking, Payment methods, Information security

INTRODUCTION

Payment systems are a key element in the development of the economy and e-payment systems are an integrated system of systems and software provided by financial and banking institutions to facilitate the operation of electronic payments secure, and operates under the rules and laws that ensure the confidentiality of insurance and protection of purchase procedures and ensure the access of the services.

When the customer or buyer makes his payment transactions for the goods or services purchased with the use of the Internet – to be online. “This type of payment lowers the costs for businesses as the more payments made electronically (online or offline) the less they spend for paper and postage. Also, it helps on improving customer retention as he is more likely to return to the same e-commerce site where his or her information has already been entered and stored”.

RESEARCH PROBLEM

There are many existence of challenges facing electronic payment in Sudan. To find it, it must be study the current situation of Sudan in this field and then propose appropriate recommends to reduce these problems which

facing the users of e-payment and money holders.

Research Methodology

To achieve the research objectives, the appropriate methodology for data collection and analysis should be chosen to achieve research objectives.

This research used the analytical descriptive method, it uses a mix of both approaches: quantitative approach focused on data collection and statistical analysis. And qualitative approach to evaluate people's views and get their opinions.

LITERATURE REVIEW

Definitions & Concepts:

A) Traditional Payment Methods

Cash is considered the one of traditional payment method is a legal tender and physical form of currency that can be used to exchange goods or services to eliminate obligations. Cash is either as a reserve for payments or as a way to avoid a downturn on financial markets, sometimes it also includes the value of assets that can be easily converted into cash.

The other traditional methods are the transfer through bank accounts, phones and cheques. These are the most common methods when you need to exchange large amounts or pay for expensive things such as buying houses, furniture, cars, etc. Usually the customer depends on cheques and bank transfers, but all these methods are not suitable for electronic commerce and are not fully guaranteed, because of remittances may need a full day for the money to be transferred to the owner as well as cheques to be deposited in the beneficiary's account in addition to other problems such as apostate cheques or delay payment of money and many of the problems that we find solved in the instruments of trade and electronic payment.

B) E-payment pros

The e-payment systems allow customers to make their payments whenever and wherever.

Time savings. Money transfer between virtual accounts usually takes minutes, while a wire transfer or a postal one may take several days.

E-payment has effective influences on the economic system, it may also increase the advantages of cashless payments without using of retail, and also eliminates gradually using cash-based, which limits illegal activities (e.g., counterfeit money, theft, embezzlement, tax evasion, corruption...), so increasing the transparency and the law enforcement capacity.

E-payment reduces cash in monetary circulation and driving economic benefits.

C) E-payment Cons

Online Security. The e-payment systems have the lack of authentications – the largest e-payments trouble. Meanwhile, there are no solutions to confirm or authenticate who coming into the information e-payment systems that are now not a criminal.

Thus, it comes indispensable to dispute the fraudulent movements have been made by means of the usage of bank debts or debit/credit cards. Missed Errors. The merchandise arrives with the mistakenly pay and ordered in e-commerce, so it cannot be used, and customers have been out their cash. Hence, it is have to be to return the unessential merchandise and wait for a long time to replace another. Fees. Some vendors of e fee systems require the clients or retailers pay a service fee (e.g., Paypal, Visa, Master...).

Furthermore, one of e-payments downside is repudiation of charges, because no transaction information of the e-payments, customers may also have an incredibly challenging time debating this price. Thus, clients need to be aware of how to shield in region concerning fees applied to the incorrect processing of e-payment systems. The necessity of Internet access. If Internet connection fails, you can not get to your online account.

D) Disadvantages of Using Banknote

The disadvantages of the use or circulation of paper currency is that vulnerable to damage and can be easily destroyed and then will not have value, in addition acceptance of paper money is limited up to the domestic country as well as if the government demonetizes the paper money the paper holder will have a worthless pieces of paper in his hand.

The dangerous disadvantage of paper money is that the less developing countries that have a budget deficit meet this deficit by issuing paper money, raising the price level and facing the country inflation, in addition to exchange rate problems in the case of the metallic money remains stable while in the case of paper money remain volatile.

There is less stability of value in paper money as compared to metallic money, sometimes people spend money on money and keep their money in the form of gold, silver and foreign currencies.

In addition, paper money is an important source of infection and transmission of viruses.

E) Mobile Payment:

Mobile payment is one of the most critical drivers for successful mobile commerce using bank account or number of prepaid card. Mobile payment refers to payments for goods, services, and bills using a mobile device using wireless and other communication technologies.

Given the widespread use of mobile devices and users' needs for convenient and timely payment, mobile payment is expected to become an important channel for conducting financial transactions. Once realized it could become an additional revenue stream to service providers and investors

F) Secure Electronic Transactions (SET):

SET is an e-commerce protocol and security protocol for an electronic payment system jointly developed by Visa and Master- Card in 1996 as

a method to secure payment card transactions over open networks. It utilises PKI to address e-commerce security and privacy concerns, Industrial interest in the protocol is high as witnessed by the participation of GTE, IBM, Microsoft, Netscape, RSA, and other companies in the protocol's development.

The SET protocol is invoked after the card holder has completed browsing, selection, and ordering.

Before this flow begins, the cardholder will have been presented with a completed order form and approved its contents and terms, such as the number of installment payments if the merchant is billing for the transaction in installments. In addition, the cardholder will have selected a payment card as the means of payment.

Challenges of e-payment

Electronic payment faces many challenges that reduce its spread and development, including:

1. Infrastructure:

The most important challenge for e-payment is proper infrastructure. The term infrastructure in an information technology context refers to an enterprises entire collection of hardware, software, networks, data centers, facilities and related equipment used to develop, test, operate, monitor, manage and support information technology services. These elements are also an infrastructure for electronic payment and all departments in the IT field.

For the effective deployment of e-payment, it is necessary to have a reliable and effective infrastructure that can be highly efficient to ensure that is an effective electronic payment. The most common reason that hinders e-payment in Sudan is communication infrastructure. Inadequacy of the infrastructure for wireless communication and access to the internet which is expensive and limited, and its weak speed. Sudan suffers from problems in networks, which is often out of service and this is enough reason facing the citizens in using

electronic payment. Plus the linking between banks and electronic payment companies is very weak; the reason is that any bank wants to develop a system of electronic payment of its own, which led to a gap in the electronic payment system of the country as a whole, and automation of all services to facilitate e-payment gives their customers a trust towards using e-payment.

2. Security

One of the biggest challenges of e-payment is to ensure its security. Information security is an essential requirement for any efficient and effective e-payment system.

An e-payment system that is not secured may not get trust from its users and the trust is one of the crucial factors for the acceptance of e-payment system. Malicious applications target online banking transactions have also increased dramatically. This malicious activity has led to unauthorized access.

Therefore, ensuring the protection of all parties in electronic payment systems is very important to make these systems highly efficient.

This section discusses major security challenges of e-payment system and how to avoid it.

3. Social and Cultural Challenges

On the one hand, technical illiteracy and weak of public awareness of trade and electronic payment are one of the biggest cultural challenges that hinder the spread of payment and electronic commerce in Sudan. There is general lack of awareness regarding benefits of E-Commerce and E-Payment.

The majority of citizens have no confidence in the systems of commerce and electronic payment, which causes a major challenge that hinders the growth of electronic commerce. We need to provide the element of confidence that is secured by various tools, including cultural and social frameworks.

The low level of income of individuals also has a significant role in reducing the activity of citizens in the use of technology, whether accessing internet is a costly affair for the poor who struggle for their livelihood or high prices of goods. On the other/ hand, there is a great failure by the banks and EBS company to spread awareness and promote the systems and websites which available in Sudan. In addition to the lack of effort of individuals and institutions in developing systems for their products and display them on websites and also the lack of initiatives in adopting systems and research graduate students which are related to the growth of e-commerce and the spread of electronic payment.

The dominance of English language on the internet constrains the access of non-English-speaking population, where most of the sites in English, causing a major cultural problem hinder the progress of trade and electronic payment.

4. Political and Economic Challenges

The economic embargo or economic sanctions that Sudan is going through have a negative impact on the use of trade and electronic payment by international cards such as MasterCard and Visa. However, not all the problem in the ban, electronic companies do not seek to develop in a suitable manner to reduce the impact of the economic embargo, in addition to the economic problems and inflation. Which is reflected in the lack of hard and local currencies, which is one of the problems that was its solutions the use of electronic payment as electronic payment improves the wheel of the economy and played a very important role in the economy.

5. Regulatory and Legal Challenges

Legal and regulatory laws are the most important requirements for implementing successful electronic payment gateways.

Legal challenges mean the privacy of contracting between contractors and the privacy of information exchanged between them, and the challenge of computer crimes, which aims to protect the activity from the criminal activities of hackers of computer systems and networks.

There is also the challenge of jurisdictional problems in the consideration of disputes that arise between contractors. In the Internet environment, geographic boundaries are eliminated, and the spatial competence of the judiciary is eliminated.

As for organizational challenges, business development through e-marketing needs to bring about fundamental changes in the infrastructure of the structure. There is an urgent need to reorganize its structures and integrate the marketing communication activities and activities of e marketing with modernizing the work procedures in line with the technological developments.

RESULTS

After studying the collected data from the questionnaire answers we found that a large number of people lack the culture of electronic payment and technical culture in general. Most e-payment users are male and age group most commonly used for electronic payment, ranging in age from 18-35 years, 52% of graduates use electronic cards and 12% of postgraduate, this is does not mean that postgraduate do not use electronic cards but the size of the sample did not target them. More than half of the samples do not know what EBS Company is and 40% know it but did not think it succeed in spreading e-payment and the banks technology. Even in the use of electronic payment, only 55% of the sample uses it. 27% use it through banks applications to pay bills, such as Bank of Khartoum application (mBOK), and 35% use it through points of sale. These percentages are very weak compared to the situation reached by many countries in the world.

Table (1) Frequency of Gender based on Educational level

		Gender		Total
		Male	Female	
Educational Level	Uneducated	1	3	4
	Secondary	7	5	12
	Graduate	62	46	108
	Post Graduate	17	9	26
Total		87	63	150

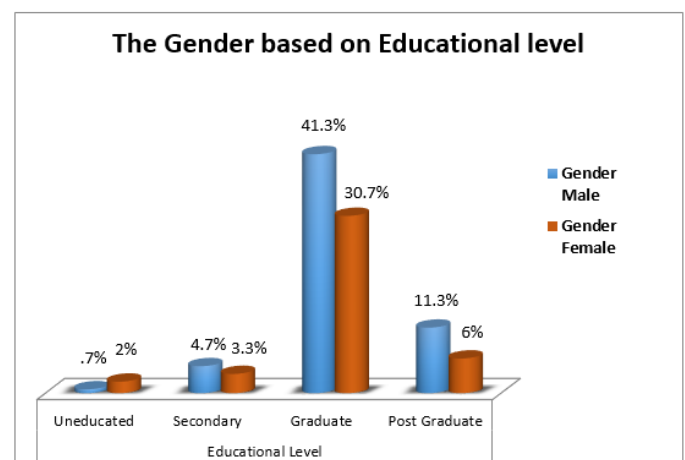


Figure (1): The Gender based on Educational level

Due to weak of spread of e-payment systems and lack of citizen's awareness and mistrust of it, became very difficult to make it solution without a prior awareness campaigns about its importance.

The major challenges of e-payment in Sudan include Poor networks infrastructure, People are resistant to new payment mechanisms, frequent power disruption and Lack of skilled manpower. For the success of electronic payment systems, there are a set of factors that affect the electronic payment process: independence, interoperability and portability, privacy, anonymity, divisibility, ease of use and un-traceability.

Table (2): Frequencies of summary of e-payment obstacles

Description	Strongly agree	Agree	Total	percent
Lack of credit card	57	39	96	13.62%
Infrastructure	70	47	117	16.60%
Network and IS	43	45	88	12.48%
Economic ban	55	33	88	14.48%
IT	27	56	83	11.77%
Citizens awareness	59	49	108	15.32%
Banking sector	14	53	67	9.50%
Laws and regulations	22	36	58	8.23%

Summary of e-payment obstacles

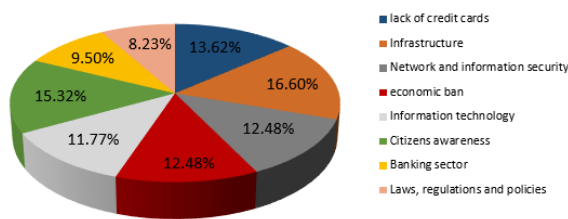


Figure (2): Summary of e-payment obstacles

RECOMMENDATIONS

Technical Recommendations:

1. Improve communication infrastructure continuously to provide fast and reliable networks in all states of Sudan.
2. Producing a unique electronic payment system that guarantees its acceptance internationally or adoption of a system that is not banned in Sudan.
3. Charge the electronic wallet through ATMs or bank transfers only, and canceling charging with cash because they are not considered electronic if it is paid in cash.

Recommendations to the government:

1. Solve the problem of USA economic sanctions on Sudan.
2. Improving the economic situation by creating production opportunities and get export earnings revenues and then imposing the use of electronic payment systems because the imposition of it at this time is not useful because of the need for everyone to liquidity cash.
3. Designing a huge local e-commerce website that contains the products of all companies and stores and paying the value of purchases electronically by linking the customer's account on the website with his bank account.

CONCLUSION

This research found that electronic payment in Sudan is still far away from what many countries of the world have reached. It was not a solution to the problem of the liquidity crisis which Sudan is going through at the present time.

There are many challenges facing the future of technology in Sudan, which consist in a weakness of infrastructure whether network infrastructure or hardware and software infrastructure, technical awareness, security challenges, political and economic challenges. Also there are many opportunities to improve the level of electronic payment in Sudan if the recommendations of this research are taken into consideration.

Therefore, we would like to draw the attention of all officials and workers in the Central Bank of Sudan, EBS and the Ministry of communications and information technology and all those involved in this field to endeavor to develop the technology and the dissemination of electronic payment compulsory in all public facilities. Also put the responsibility for awareness on all employees and students in the field of computer sciences and IT to dissemination culture their field.

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