

## CHALLENGES INFLUENCING IMPLEMENTATION OF ELECTRONIC PAYMENT SYSTEMS: A CASE STUDY OF KENYA AIRWAYS COMPANY

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### ABSTRACT

The study sought to establish the challenges influencing the implementation of electronic payment systems. The particular factors identified were poor Security measures, Regulatory and Legal Issues, Socio-Cultural Challenges, Infrastructure, Financial barriers, Institutional barriers, Political barriers and attitudinal barriers along with any other factor captured during data collection and analysis. The researcher adopted a descriptive research design. The analysis involved primary data obtained through questionnaire, interviews and secondary data obtained from journals and books. The study was based on Kenya Airways Company, a leading national carrier whose core business is transportation of passengers and luggage in Kenya and across the borders. It was evident from the findings that Kenya airways EPS process was not effective as indicated by 68 percent of the responses. It was also found that the firm had no staff training policy on the process with majority of the staff involved in procurement just relying on seminar training to run the procurement unit. The findings from the research gave conclusion that focused on the need to establish training programmes as well as maintaining high organizational culture. Overall there was the felt need to distribute and train personnel on the public procurement and disposal act policies and procedures. This study contributes to our knowledge on procurement process by presenting the key factors of challenges influencing implementation of electronic payment systems: poor security measures, Regulatory and Legal Issues, Socio-Cultural Challenges, Infrastructure, financial barriers, Institutional barriers, Political barriers and attitudinal barriers. Therefore a case study of Kenya Airways was carried out to show how the electronic payment evolved, development and the challenges of implementing the electronic payment systems.

**Key Words:** *electronic payment systems, implementation challenges, Kenya Airways*

## Introduction

Electronic payment is a subset of an e-commerce transaction to include electronic payment for buying and selling goods or services offered through the Internet. Generally we think of electronic payments as referring to online transactions on the internet, there are actually many forms of electronic payments. As technology developing, the range of devices and processes to transact electronically continues to increase while the percentage of cash and check transactions continues to decrease. In the US, for example, checks have declined from 85% of non-cash payments in 1979 to 59% in 2002, and electronic payments have grown to 41%.

The Internet has the potential to become the most active trade intermediary within a decade. Also, Internet shopping may revolutionize retailing by allowing consumers to sit in their homes and buy an enormous variety of products and services from all over the worlds. Many businesses and consumers are still wary of conducting extensive business electronically. However, almost everyone will use the form of E Commerce in near future.

An Electronic Payment System (EPS) is a form of inter-organizational information system (IOS) for monetary exchange, linking many organizations and individual users. This may require complex interactions between the stakeholders, the technology and the environment. The unique characteristics of EPS/IOS also differentiate it from traditional internal based information systems; it is more complex and multifaceted technologically, organizationally and, relationally (Sprague and McNurlin, 1993; Boonstra and De Vries, 2005; Kumar and Crook, 1999), highlighting the importance of collaboration and the need to bring all the facets together.

Electronic Payment System (EPS) encompasses the total payment processes, which include all the mechanisms, technological systems, institutions, procedures, rules, and laws that come into play from the moment a payment instruction is issued by an end-user. Different kinds of rules, regulations, mechanisms, technology and arrangements have therefore been put in place by trading partners, markets and governments in all countries and throughout time to develop effective infrastructure of monetary exchange, commonly referred to as payments systems (Bossone and Massimo, 2001).

This situation will illustrate the individual and collective importance and influence of rules, regulations and arrangements in the development process of electronic payment systems. It also demonstrates that EPS like other information systems may be defined as the selection and application of organizational resources (Ives et al. 1980); and is also composed of activities and relations of different groups of stakeholders characterized by inter-organizational issues that are subject to conflicting interest from different stakeholders (Mursu et al. 2000). This is a reflection of the socioeconomic and technological context of IS and the moderating influence of environmental socio-economic factors (Pick and Azari, 2008). The information systems development (ISD) process therefore is often adjusted to this context in ensuring the interests of all stakeholders (Korpela et al. 1998). On the other hand, IS in most cases may also not function well within the organizational / external environment unless there is a modification of the system, the organization or both (Wijnhoven and Wassenaar, 1990). This may imply the system conforming to organizational demands or the organization (institutions) conforming to systems 'demands. This supports the argument that technology use, and IS in particular, is modified by organizational, inter-organizational, and institutional arrangements in the development process. Features of the technology are thereby combined with the way users interact and take advantage of the system (Fountain, 2001) through institutional arrangements. Unfortunately little empirical work has been carried out on the institutional arrangements in IOS development, particularly in electronic payment systems. The literature on EPS mainly focuses on technological issues,

systems efficiency, risks, choice of payment instruments and managerial/business aspects (Camenisch et al. 1996; Herzberg, 2003; Chauand Poon, 2003; Liao and Wong, 2004; Yu et al. 2002). Organizational and marketing arrangements facilitating payment services and systems development also need to be considered.

EPS development in particular is faced with challenges ranging from lack of adequate legal backing, governance issues, credibility of the human element and lack of skilled resources, integrity of data transmitted, lack of infrastructures, interconnectivity and interoperability (Ovia,2005), attributable to the country's technological infrastructure and institutional capacity. Payment systems development, is seen as both social and political processes (Christiaanse and Huigen, 1997), shaped by the politically and socially constructed realities of its contexts (Currie, 2009). EPS development therefore may have to take into consideration a whole range of factors, particularly the state of development of the socio-political setup in the country which is usually regarded as poorly developed in developing countries. The range of factors to consider include network of actors involved, their interactions and outcomes and how they are influenced by the institutional contexts (King et al. 1994). Another main factor is the processes and elements that make up the payment system which include the payment infrastructure, legal framework and institutional arrangements and how they individually and collectively influence development. EPS is anointer-organizational information system that transcends organizational boundaries, thus the collaboration of the stakeholders and sharing of resources (Kumar et al. 1998) and how it interacts and affect the elements of the payment system may also be key issues in the development of EPS. The following types of electronic payments are commonly used in Kenya Airways Cards, Internet, Mobile Payments, Electronic Payments Networks, Electronic Funds Transfer (EFT) System, Cheques, Automated Clearing House (ACH) – Cheque clearing process and Direct Debits.

E-payment, the transfer of value electronically, in turn depends on secure ICT infrastructure, efficient legal and regulatory regime, and widespread awareness among the public and business. In this paper I will be looking at these and other relevant issues from global, African and Kenyan perspective.

### Statement of the Problem

Payment for goods and services in Kenya is characterized by long queues; long distance traveling and time wasting that generally affect business activities and ultimately economic development. (Sarpong, 2003) Settling utility bills, payment for goods and services, and money transfers has been a major headache for individual and firms in Kenya resulting in declined 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 payment such as the use of cards, automated teller machines (ATM), the Internet, mobile phones, and etc. (Sarpong, 2003) the payments and clearing system in the country is under developed. For instance, cheques drawn in Nairobi against accounts held in banks in Nairobi taking could take three days whilst cheques drawn on different regions can take several weeks. There is no central clearing system to clear debit card transactions between banks. The banking halls continue to be immersed with the long queues as people come in to collect their monthly wages or salaries. Many people have been holding large sums of money outside the banking system as a result of the ordeal one has to go through before withdrawing money or making payment. (Sarpong, 2003)

However, faced with such problems in the payment process, only a few payment solutions have been introduced so far in Kenya to solve them. Cash still remains the most popular retail

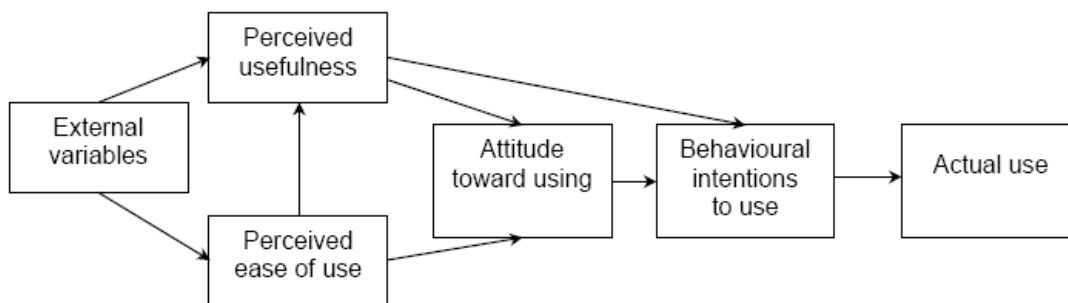
payment instrument, despite the increase in the introduction of electronic payment schemes in the country. (Sarpong, 2003) Whether consumers are adopting the current and emerging payments mechanisms is another issue confronting the banks.

## Theoretical Review

### Tam (Technology Acceptance Model)

Technology Acceptance Model (TAM) was derived from Theory of Reasoned Action (TRA) (Fishbein and Ajzen, 1975) where TRA illustrates behavioral theories while TAM is more Information Systems' specific. Figure 1 illustrates an outline of TAM through its main constructs.

Figure 1: Technology Acceptance Model



*Technology Acceptance Model* TAM identifies and predicts user acceptance attributes before they actually experience it. Davis assumed that user acceptance of technology depends on Perceived Usefulness (PU) and Perceived Ease of Use (PEOU). PU is thus defined as —User's opinion that after using a system it will increase a user's job performance within an organization□ and PEOU is defined as —the expectation that the software is free of effort. (Davis et al, 1989). TAM is said to be a good predictor of the intention to use a software package however it is not enough to predict user attitudes towards EPS. One of the main reasons seen is that EPS deals with money exchange and not productivity as illustrated in TAM. However the key factors of this model PU and PEOU was considered to be influential in the capacity of providing perceived advantage to the user's to influence them to switch to online payments.

## Empirical Review

### Security

The biggest challenge of e-payment to the suppliers and customers is to ensure their security. Securing the payment process involves authenticating both the customer, merchants and the suppliers and protecting the information to be transmitted from interception. In addition a means must be provided that prevent repudiation both by the suppliers, merchants and customer once the payment process has taken place. E-payment systems have to take into account the need of multilateral security i.e. security needs of all participating parties in the e-payment system must be given due attention. An e-payment system that is not secured may not get trust from its users.

Trust is one of the crucial factors for the acceptance of e-payment system. Majorly the main security threats include disclosure of private information, counterfeiting and Illegal alteration of payment data.

There is lack of adequate security with the use certain electronic payment devices like card payments. The lack of security when processing transactions over the Internet is posing a great threat to its adoption.

Internet fraud is on ascendancy in Nairobi, the national capital. The youth through dubious means lay hands on credit card numbers of other people and ultimately using them to make bulk purchases from online marketing sites like e-bay and others. With credit and debit cards, consumers cannot detect fraud until their statement of accounts arrives but credit card companies and banks do not insure against fraudulent use of their cards. Hence consumers bear the full responsibility of any debts fraudulently accrued. (Kenya web, 2004).

Security, confidence, reliability and efficiency are fundamental features of any electronic payment solution. Security makes consumers more inclined to trust and to use a newly developed electronic payment solution. The OECD (1997) stated that in developed countries, “it was only after the credit card industry assured users that their exposure to criminal misuse of cards was limited that confidence in that form of payment developed.” Since electronic retail payments relies heavily on credit cards for identification and payment, the credit card companies refusal to insure its customers against fraud will inhibit its adoption.

### **Regulatory and Legal Issues**

National, regional or international set of laws, rules, and other regulations are important prerequisites for successful implementation of e-payment schemes. Some of the main elements include rules on money laundering, supervision of commercial banks and e-money institutions by supervisory authorities, payment system oversight by central banks, consumer and data protection, cooperation and competition issues. The virtual and global nature of e-payment also raises legal questions such as which jurisdiction will be competent and about applicable laws in disputed cases, validity of electronic data, electronic contracts, and electronic signature. Moreover, a legal and regulatory framework that builds trust and confidence supporting technical efforts to meet the same is another important issue that needs to be addressed.

National regulatory and legal framework that is in line with regional and international agreements is crucial in creating a certain and reliable environment. Adopting model laws at global level such as the UNCITRAL Model law on E-commerce (1996), UNCITRAL Model law on E-signatures (2001) and at regional level on Electronic Transaction and Data protection can help the purpose.

More so, the lack of rapid development of the payment solutions is the security measures surrounding deposit transfer systems. There is lack of adequate implementation and monitoring of payment systems security. From the consumers’ and retailers’ perspective, the crucial criterion for the success or failure of a payment product is confidence. However, doubts as to the applicability of existing laws and regulations increase the perceived risk of using electronic retail payment products.

## Socio-Cultural Challenges

Cultural and historical differences in attitudes and the use of different forms of money (e.g. use of credit card in North America and use of debit cards in Europe) complicate the task of developing an electronic payment system that is applicable at international level. Difference in the degree of the required security and efficiency among peoples of different cultures and level of development aggravates the problem.

Consumer's confidence and trust in the traditional payment system has made customers less likely to adopt new technologies. New technologies will not dominate the market until customers are confident that their privacy will be protected and adequate assurance of security is guaranteed. New technology also requires the test of time in order to earn the confidence of the people, even if it is easier to use and cheaper than older methods.

## Infrastructure

The other challenge for e-payment is proper infrastructure. For the effective deployment of e-payment, it is necessary to have a reliable and cost effective infrastructure that can be accessible to the majority of the population.

The most common communication infrastructure for e-payment is computer network such as Internet. Most e-payment systems use Internet to communicate with their customers. The other communication infrastructure available for e-payment users is the mobile network used for mobile phone.

Automating the banking activities is another prerequisite for e-payment system. Closed financial network that links banks and other financial institutions is necessary. This network is usually used between banks or other financial institution for clearing and payment confirmation.

Both the mobile network and Internet are readily available in developed countries. Users in these countries do not have problem associated with communication infrastructure. In Africa both mobile networks and Internet are not easily accessible. Poor communication infrastructure is one the reasons that hinder the e-payment system in Africa. User access devices such as PC and mobile phone are not also readily available in Africa, another reason that hinders e-payment in Africa.

Both consumers and business enterprises have limited knowledge of what services exist, how they operate and what benefits to be derived. Due to high level of illiteracy, most of the people do not recognize the economic importance of electronic retail payments. Most Kenyans especially the aged, lack the skills and knowledge required to ensure efficient and effective use of the system.

Our investigation showed that only a few number of the adult population have computer knowledge and skills. The low level of knowledge in the payment devices and how each of them works has led to low patronage of the existing retail payment products. Information on practical issues with regard to handling, confidence-related issues on security, integrity and consumer law issues concerning internal and external trade are necessary to increase patronage.

### **Financial and attitudinal barriers**

Financial barriers: Lack of resources for investment in new technologies; and lack of a business case to justify the expansion of services by the private sector into remote areas. While attitudinal barriers from senior decision makers within all stakeholders can constrain the wider adoption of new technologies it is also necessary that senior managers of humanitarian organizations may perceive new technologies as being too risky or expensive, or may not be familiar with the potential benefits that new technologies can offer, or fear that technology will lead to exploitation of recipients by the private sector, and may be hesitant to commit resources to adopting new systems. Donor mind-sets and requirements for aid and recipient attitudes to new technologies can also present barriers to using e-payments systems to transfer cash.

### **Institutional Barriers and Operational Constraints**

Institutional barriers within the company they include: lack of awareness about new technologies; time and effort required to adopt new systems; and limited resources and capacity to adopt new ways of working. The low capacity of private sector actors to scale-up and low levels of recipient literacy and education also remain important constraints. On the other hand operational constraints in adopting new technologies include the limited availability of time and resources to research, cost and select an appropriate technological solution, and the time required to negotiate contracts, set up and test new systems, and train staff.

### **Political Barriers**

Political barriers include aid agencies' concerns about data protection issues and, more broadly, wariness of the risks of involving private sector actors in the humanitarian sphere and suspicions about their underlying motives. Aid agencies may also be unwilling to share technological innovations between themselves, resulting in incompatible or custom-built technological solutions to the same problem, which may have a detrimental impact on aid effectiveness.

### **Methodology**

The researcher used descriptive design which enabled the clear presentation of the variables under investigation. The selection of Kenya Airways Company as the organization of study was based on convenience, accessibility and willingness of the organization to take part in the study of this nature. The total population of the department was 140 according to the Human Resources Department.

## Findings and Discussions

**Effects of security in implementing EPS**

STATEMENT	Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree
The company has embraced EPS	0.0	2.9	5.7	14.3	77.1
The use of EPS saves time	0.0	0.0	3.7	8.7	85.6
The use of EPS leads to quality purchases	14.2	5.7	8.6	14.2	57.3

When asked whether the company had embraced EPS 77.1 percent strongly agreed with 14.3 percent agreeing, this was due to low level of training on the procurement process. 100 percent of the respondents agreed that EPS leads to timely purchase. The finding on the effect of EPS on quality purchase was interesting with 57.3 percent strongly agreeing with it leading to better quality purchase while 14.2 percent strongly disagreed. This may be attributed to the complex nature of payment due to approvals in subsequent stages in the company.

**Effects of Regulatory and Legal Issues**

STATEMENT	Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree
The company has embraced EPS	0.0	2.9	5.7	14.3	77.1
The use of EPS saves time	0.0	0.0	3.7	8.7	85.6
The use of EPS leads to quality purchases	14.2	5.7	8.6	14.2	57.3
The government policy makes the procurement process less time consuming	0.0	57.2	14.3	28.6	0.0
The government policy leads to high quality goods/works/services purchases	28.6	28.6	0.0	28.6	0.0

When asked whether KQ had implemented the government policy guiding EPS, 51.4 percent of the respondents strongly agreed with 34.3 percent disagreeing. These findings can be attributed to the failure by the company to have a training policy on the EPS. 57.2 percent of the respondents disagreed or strongly disagreed when asked whether the policies make the EPS less costly. Majority of the respondents felt that the procedures stipulated in the banks act are time consuming and prone to misuse and this was strongly supported by 57.2 percent of the respondents disagreeing that the policies leads to less time consuming of the process.



**Effects of infrastructure in EPS**

STATEMENT	Strongly disagree	Disagree	Undecided	Agree	Strongly agree
The company has embraced EPS	0.0	2.9	5.7	14.3	77.1
The use of EPS saves time	0.0	0.0	3.7	8.7	85.6
The use of EPS leads to quality purchases	14.2	5.7	8.6	14.2	57.3

Despite KQ having the best infrastructure, it still has so much in terms of the customers who access the system from outside since they do not have enough trust with the system: standard charted case in KQ.

**Effects of institutional Barriers and Operation Constraints in Implementing EPS**

STATEMENT	Strongly disagree	Disagree	Undecided	Agree	Strongly Agree
The company has a staff training policy on all staff involved in procurement process.	94.2	2.9	0.0	2.9	0.0
The staff training on procurement process affects the quality of purchases.	0.0	0.0	0.0	2.9	97.1
The staff training on the process leads to competence among the staff	0.0	0.0	2.9	2.9	94.2

According to the respondents, KQ had no staff training policy for the staff involved in procurement process as indicated by 94.7 percent of the respondents who strongly disagreed that the firm had a staff training policy. The company had procurement specialist and majority of the staff relied on one day seminar training knowledge on procurement to carry out their procurement duties, however, 94.7 percent of the respondents strongly agreed that staff training on the process may lead to competence hence saving time.

**Summary**

The objective of the research was to determine the challenges affecting the implementation of Electronic Payment System in the Airline Sector in reference to Kenya Airways. Those responded to the study were 38 out of 40 selected respondents however the actual number which was used for analysis was 35 since three of the responses were rendered unresponsive. It was evident from the findings that Kenya Airways Electronic Payment Process was not effective as indicated by 88 percent of the responses despite majority of the respondents claiming to be familiar with the term Payment System. This was due to several complains identified in the

literature review from user departments ranging from later deliveries, non cost-effectiveness of the process, low quality purchases and more time spent before completion of the process.

The study findings confirmed that factors identified as bearing influence on EPS effectiveness by airline companies do not differ significantly with those identified in the literature reviewed. Despite this assertiveness two more factors were identified by the respondents: buyer-supplier relationship and the organizational structure of the firm.

### Recommendations

There is need for Kenya Airways to review its training and security measures on payment systems process. This will lead to meeting the lead times by the suppliers and the buyers to trust the system and eliminate the unnecessary documentation that make the process cumbersome.

There was also felt need for establishing a training policy to all procurement staff so as to curb the level of illiteracy or other than depending on the training brought in terms of the seminar. This will provide the staff involved in the process with the much needed knowledge and guidance. The firm should employ procurement professional so as to bring in the much needed expertise and advice especially in implementation of the government policies and strategies on making the process cost effectiveness.

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