

# User Pattern Analysis of Mobile Payment Systems: Evidence from the Streets of Nairobi

By

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# **Abstract:**

## **Purpose –**

*This paper sets to analyze the utilization trends of mobile based payment systems in Kenya. A user perception analysis model is employed to provide a suitable investigation framework.*

## **Design/methodology/approach –**

*Utilizes a multi-analytical metatriangulation approach to integrate multiple sources of information in order to draw inferences about the domain of interest*

## Abstract Cont'd

### **Originality/value –**

*Conclusions realized through the user pattern appraisal propounded in this study are generic enough to be applied to broad range application development decisions so as to yield robust mobile payment facilities.*

## Introduction

The Kenyan mobile sector has been recording a consistent improvement in performance over time. The mobile subscriber base recorded a 38.7% growth between 2007 and 2008

2007-9.3 Million

2008- 12.9 million ( 38.7 percent increase)

Expansion of existing networks and emergence of alternative providers has subsequently bolstered the state of competition within the telecommunication arena.

A direct result of this state of affairs is the introduction of promotional offers, lower calling charges and most remarkably the surfacing of value added mobile services.

Principal among the services that have been born out of the dash for alternative paths of survival by mobile firms is the mobile money transfer service.

Mobile payment innovations have become a new battle frontier amongst Kenyan service providers.

To competently address the aspects that confront the mobile payment users as technology handlers, a systematic analysis of the perceptions and exploitation facets is essential.

This study sets to capture the context specific issues so as to illuminate the patterns acquired by intended users of mobile payment systems.

Additionally the overriding social aspects that pose influence on the adoption and use of mobile payment innovations are explored.

## **Specific objectives of the study**

Centrally this study in specific terms sets to;-

- Profile the dimensions and patterns of use of mobile payments in Kenya.
- Analyze users' perspectives on the suitability of the mobile payment services in use in Kenya.

# Assessing technology success

In an attempt to explain the use and success of various technologies, multiple theories with varying contentions have been propounded

1. Technology acceptance Model (TAM),

-Davis et al (1989) relate individuals' intentions with their use of technology.

-Argue that the actual usage is influenced by the users' attitude as well as the perceived usefulness of the technology.

Emphasis is on usefulness and user friendliness



2. Innovation diffusion theory (IDT) attach a significant focus on the mode of progress of technological innovation from the emergent stage of innovation to its widespread use or failure of adoption.

Rogers (2003) highlights various issues of concern for an innovation to be deemed a success:

i) Relative advantage. The extent to which a technology offers improvement over existing tools.

- (ii) Compatibility – consistency with social practices and norms amongst its users.
- (iii) Complexity – Ease of use or learning.
- (iv) Triability – the opportunity to try out an innovation before ultimate commitment.
- (v) Observability- Extent to which the technologies outputs and gains are clear.

3. Task technology fit (TTF) theory contends that a technology is bound to have a higher positive impact if its capabilities match the tasks that the user needs to perform (Goodhue and Thompson, 1995).

Factors that depict an appropriate task fit include; quality, locatability, authorization, systems reliability and ease of use

## **A Synopsis Of Mobile Payment Systems In Kenya**

Mobile payment services in Kenya were first introduced in March 2007 by Safaricom mobile operating firm.

The mobile payment systems enable customers to deposit, transfer withdraw or transact using funds from their mobile accounts. For instance customers can pay for goods or services, utilities in addition to manipulating their bank accounts.

-Zain mobile firm launched their mobile payment service in February 2009 under the Zap brand name.

It's notable that the pricing strategy adopted by Zain for their service has not satisfactorily achieved the possibly unarticulated goal of "poaching" from their more established competitor.

The deduction here is that for customers to migrate to a new provider, pricing is a probable but not sufficient motivator.

Kenyan mobile penetration rate expected to hit 67.5% by 2012, ([www.ecommerce-journal.com](http://www.ecommerce-journal.com)).

## Research Strategy

Meredith et al, (1989) assert that description is the starting point of the normal cycle of research since it forms the basis for explanation which can then be tested against reality.

Given its multi-analytical nature metatriangulation is utilized to integrate multiple sources of information in order to draw inferences / generate rich theoretical perspectives for understanding the user patterns of mobile payments in Kenya (Saunders and Thornhill, 2007).

The population of study was composed of all the eligible users of mobile payment services.

To expand the range of parameters for analysis and enhance the degree of accuracy, subscriber samples were stratified into three categories namely, agents; active ordinary users and eligible non users.

The non-eligible user category was engaged in order to provide insights into the possible fundamentals for lack of usage.

The sample size was capped at 100 respondents with 50 for the active ordinary users, 30 for the agents and 20 for the dormant user category.

All respondents were picked randomly from the Kenyan capital city of Nairobi given the pervasive nature of the phenomenon of study in this region.



## **Discussion Of Issues Emanating From Respondents**

From the pertinent mobile payment literature and on the basis of reviewed theories on technology success and acceptance factors, a user perception framework was generated and forms the platform for the analysis.

The issues that ranked significantly with regard to use have been summarized with their corresponding means in table 1.0. Aspects highlighted are those that have a significant bearing on the extent of use and may not necessarily be construed as problematical.

<b>Dimension of Use</b>	<b>Mean of Respondents</b>
Cash Deposit and withdrawal	0.95
Fund transfer (Sending/Receiving)	1.00
Payment of bills and utilities	0.11

- 95% of the respondents indicated the use of the service to deposit and withdraw cash as need arises. This is significant in the sense that a huge population proportion is using the mobile payment system as contingency accounts.

- 100% of the respondents admitted their use of mobile payment services as a tool for funds transfer either by way of receiving or disbursement to other destinations. Worth attention is the fact that most respondents acknowledged having sent more funds than what had been wired to them.

Social-cultural dimension-aspects of strained relationships were also revealed. Those who used to travel frequently to their rural homes prior to the birth of mobile payment services appeared to have substantially trimmed the number of visits and substituted the same with mobile payments.

With regard to payment of bills and other utilities the mobile system only 11% of the surveyed users reported success. Inhibitions range from complexity to incomplete confidence on the system given that the system did not present opportunities for trial before subsequent commitment to use.

## Further Issues Arising From Use of Mobile Payment Services

Respondents were further asked to rate the significance of various aspects to their ultimate degree of use of the mobile payment systems.

A Likert scale of 1 through 5 was adopted. Relative levels of significance were assigned as follows: 1 – Not important 2 – slightly important 3 – important 4 – Fairly important 5 – Very important

The summaries of resultant means are presented in table 2.0 with specific attention granted to the top ten issues.

<b>Study attribute</b>	<b>Mean</b>
Security of transaction	4.68
Efficiency and speed /Reliability	4.60
Liability for transactional losses	4.52
Complaint resolution	4.42
Sufficiency of transaction points /Accessibility	4.32
Transactional costs	4.23
Validity of M. Payment contracts	4.13
Retention of M. Payment receipts	4.09
Stability of service/Freedom from interruption or failure	4.04
Exposure to fund scavengers	4.02

Source: Survey data

- Security of transactions ranks highly. Users are greatly sensitive to any pertinent risk that may culminate in loss of funds.

- Reliability as depicted by the attributes of speed ease of use and efficiency of service received an importance measure of Whenever funds are involved users generally demonstrate an appetite for speed and non wasteful procedures of service.

- How to resolve the question of liability whenever transactional losses occur e.g. funds routed to wrong destinations.

- Complaint resolution also surfaced as an important paradigm of user influence. Quick resolution of transactional disputes significantly influence the value that users attach to the service in addition to prospects for repeat transactions.

- Sufficiency of transaction outlets-The fast pace of modern business outlook necessitates ease of access to funds as opportunities for their application unfold.
- Transactional costs rank lower than would be generally expected. The implication here is that users are ready to make an extra monetary sacrifice if other factors they deem critical are guaranteed.
- Validity of contracts initiated and finalized through the mobile technique. Debate continues to rage over the extent to which mobile payment based contracts can withstand a legal test.
- Capacity for retention of M-Payment receipts for future use

- Stability of service-frustrations with the system arising from flat failure or other network oriented interruptions.
- Financial exposure to fund seekers-users are forced to comply with incessant demands from relatives and friends since distance or location is no longer a reasonable excuse.
- It has become easy for certain individuals to solicit funds on one hand and difficult for the lenders to recover funds advanced through this system.



## Conclusions

- Use of mobile payment systems is doubtlessly pervasive and has a significant influence of numerous facets of the users.
- Providers need to understand the value placed by existing and potential users on mobile payment systems before rolling them out.
- Fundamentals that significantly influence acceptance and level of use require emphasis.
- Ease of use and triability have an influential bearing on users' perception of innovations

-A segment of potential users of mobile payments have deliberately avoided the service over a host of issues revolving around security, cost or the likelihood of exposing them into a new spending pattern.

-Users attach a high value to the mobile payment system given the convenience and other aspects of superiority it possesses over traditional payment system.

- Potential obstacles that originate from complexity of use should be refined

# Questions and Comments

Further Discussions:

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