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A Literature Review of Mobile Payments in Sub-Saharan Africa

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Abstract. The influx of mobile technologies during 1990's saw to the purchase of mobile phones and subsequently mobile terminals in the form of tablets, PDAs among others. The trend in adoption has seen increasing hikes and drastic impact on business transactions also recorded. Mobile payments have emerged as one of the electronic payment platforms that are creating convenience for many consumers. In order to strengthen the field and to examine the knowledge gap over a decade (2007-2017), a review of literature was opportune. Hence 37 studies conducted in Sub-Saharan Africa were retrieved, classified based on TOE framework and Porter's five competitive forces. The thematic areas identified based on the framework were reviewed. In addition, geographical cover, methodological issues, conceptual frameworks and gaps identified for further studies were also studied. The analysis showed that, similar to earlier findings; Changes in technology, merchant adoption and consumer adoption have been well researched into with grey areas like traditional payment systems, socio-cultural factors that affect implementation of mobile payment system. The research gaps and direction of future research were discussed.

Keywords: mobile phone, sub-Saharan Africa, mobile payment services market, m-commerce, mobile money, Ghana

1 Introduction

The influx of mobile technologies during 1990's saw to the purchase of mobile phones and subsequently mobile terminals in the form of tablets, PDAs among others. Evidently, users of mobile phones worldwide reached 3.74 million in 2009[28]; 4.01 billion users in 2013 to 4.77 billion users in 2017 and marginal increase recorded for 2018 at 4.93 billion users. Future projections for 2019 stands at 5.07 billion users as reported by Statista ("Mobile Phone Users Worldwide 2013-2019")

Sub-Saharan Africa has not been left in the coverage as it has been found that, a large part of coverage is taking place in developing countries [76]. It has been realized that, in the Sub Region, more than 60% of the population is connected to mobile coverage with more than 367 million new phone subscribers by mid-2015[29]. As the first transaction of payment made using mobile phones was carried out in 1997, researchers have developed keen interest in Mobile payments. Hitherto, practitioners have not

been left out as emerging technologies are refocusing on mobile computing, wireless web and m-commerce providing increasing value for customers and banking transactions [1,2] .

In the early 2000s, mobile payments became part of the already established list of electronic payments; internet banking and electronic cards (debit and credit cards). However, m-payments used to be seen as a new technological innovation to handle, for instance, small cash transactions (micro-payments) though there were reports of tried and failed solutions. Nevertheless, prospects and numerous benefits have been identified [14, 65, 75]. Mobile payments are of benefit to consumers, business entities or merchants and service providers. It enables users to perform their transaction independent of location and complements the wide range of existing e-payment systems, such as digital credit cards, digital wallets systems, micro-payment systems [75]. On the other hand, M-payments could be developed into a “well-functioning e-payment system which have much relevance on financial stability, monetary policy and overall economic activity” creating the enabling environment to move towards cashless economy [11, 36].

Notably, mobile payments being almost non-existent in 2007 are currently having 277 million subscribers registered out of which 100 million are active users [30]. This trend looks promising noting that mobile telephony is regarded as ‘single most transformative technology for development’ as stated by Jeffrey Sachs, an economist (“Bloomberg Business Week ,2007”). Contributing to the growing literature , extant reviews on m-commerce in different context and geographical cover have been conducted ; a review involving developing and developed countries, found the disparity in the research areas conducted on mobile payments; Consumer adoption and technological factors being well researched whilst merchant adoption, social and cultural factors , ecosystem of mobile payments were under-researched [14,15].

The global interest in the role of mobile phone technologies in developing countries from donors, governments, regulators and the banking and commerce had been growing since 2007, being the beginning of coverage specifically Africa[16,22]. In sync with the assertion by Webster and Watson[86] of a need to strengthen the field through reviews, researchers have acted such so far. One of such reviews centered on mobile payment for local adoption identifying methodological, geographical and conceptual gaps [16,18] similar to findings iterated in the review conducted by Duncombe and Boateng[22] though the later focused on M-finance whilst the former was centered on Mobile money and Mobile payments. Boadi et al. [8] also looked into the impact of Mobile money and M-commerce on SMEs. As found by Wanjala[85] and Minischetti [61] , women across countries in Sub-Saharan Africa have less access to banking than men, increasing the likelihood of women to be excluded from all financial services. This goes to suggest a need for enhancement to the design features of Mobile money services in order to reach the financially excluded and those beyond reach [30,73]

More than half a decade on after the reviews by Diniz et al.[18] and Albuquerque et al.[16] ,with more studies having been published thereafter, it is well-timed to assess the spread and depth of research conducted on Mobile payments .This intends to set the agenda for future studies hitherto evaluate whether there is a sustained in-

terest in Mobile payment research in Sub-Saharan Africa. The overall aim of this paper is to provide a literature review and synthesis of research concerning mobile payments in sub-Saharan Africa, classify and analyze conceptual approaches, evaluate methodologies used to carry out the studies, discuss evidences from those studies, identify gaps and outline the future research directions.

Subsequently Section II covers framing and methodology for review. Section III and IV entails the presentation and discussion of facts. Research gaps and future of research is covered in Section V and finally conclusion is drawn in Section VI.

2 Framing and Methodology for Review

2.1 Conceptualization of Mobile Payments

The context of mobile payments can be defined as follows: Any payment where a mobile device is used in order to initiate, activate, and/or confirm this payment where the mobile device has mobile phone capabilities (e.g. smartphones) and not general wireless capabilities like tablet PC[42]. It may refer to bill payments, acquisition payments, or a transfer of funds or money between financial agents, as well as being employed in the banking sector[16]. It is also considered as mobile proximity payments which could be conducted online as well as offline [25]. In this study, Mobile payments can therefore be generically viewed as leveraging digital mobility technologies to conduct payments or perform mobile form of transactions with or without the use of mobile telecommunications networks. Electronic money which is characterized by mobility and portability is termed as mobile-money or mobile-cash [16]. Mobile payments system is viewed as multi-sided platforms thus, are the set of stable components like high technology component while the other components are the merchants and consumers who are connected by a buyer-seller linkage. On the supply side, what is regarded as the chicken-egg dilemma is observed, when more actors are present to share resources and provide mobile payments platforms to consumers, the more consumers would like to adopt and use their mobile phone to pay and vice versa [14,25]. Most of the key actors in Mobile Payment services market includes but not limited to consumers, merchants, Mobile Network Operators (MNO) and financial institutions. Additionally, vendors of handsets, software, networks also participate in significant numbers in order to realize positive externalities [14, 74]. In developing countries, which subscribe to the business model; the user centric models, primary actors of mobile money ecosystems have evolved from consumers, distribution agents and operators to include Technology partners, banks, merchants and regulatory bodies [81].

2.2 Classification of Literature

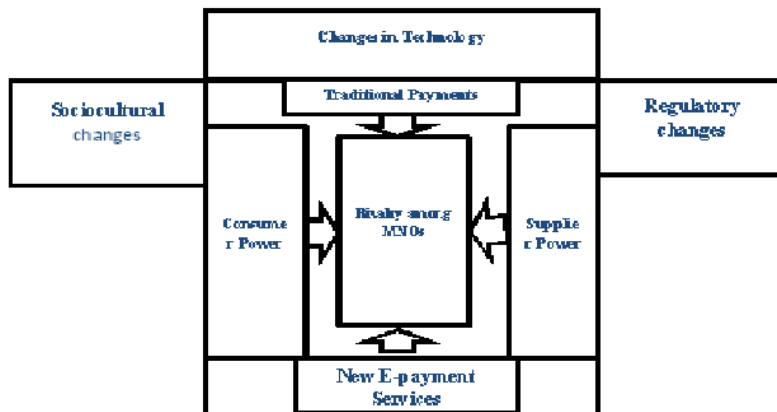
There are different types of literature review; systematic, which raise a defined question and seek answers to questions narrowing the quality of studies accessed [4]; 'A meta-analysis which uses statistical procedures to incorporate research findings from varying studies' (cf:[16]). The overall aim of the study as mentioned earlier is best featured as scoping or mapping study [45,52]. As such, it aims at summarizing evidences from studies, examine the scope and nature of research activities, identifying gaps and set the agenda for future research.

In order to produce a good review, Webster and Watson [86] recommended that such reviews should be conceptually structured and based on a guiding theory. This enables past research to be classified, findings of such studies analyzed and aid in setting the agenda for future research. Therefore in scoping of this study, TOE framework and Porters 5 competitive factors strategy model were adopted as was done by Dahlberg et al. [14].

Porter's Competitive 5 forces

This model is considered as one of the most influential management tools used by quite a number of practitioners and academics [41]. It is used to analyze the competitive environment on the level of business units [7]. The basic intention is that, industry structure dictates organizational performance. One of the strengths identified for the model is that, it provides one simple approach to analyze industry structure [38, 69].

Primarily, mobile payment market services actors are made up of mobile payment service providers and customers. The parties that assume these functions are merchants, consumers, telecoms among others. Additionally, software vendors, network as well as handset vendors could form part of the parties that interact in the market. Porter's model therefore describes and analyze key role of the mobile payment service providers and other market factors. The above arguments propose the suitability of the model to guide the classification of mobile payments services markets. The representation of the five forces within the literature framework is as follows; Traditional payment services, new e-payment systems, consumer power, merchant power and rivalry among the mobile payment service providers.



Source: Dahlberg et al., 2008 & Researcher's construct

Figure 1. Framework for Literature Review

TOE Framework

Apart from the competitive forces existing within the mobile payment's services markets, there are yet, other factors that impact like technology, regulatory activities, habits, national economy. Therefore, with the assumption that mobile payment ser-

vices markets serve as unit of analysis(organization), these other factors serve as external forces that influence performance of the unit. The TOE framework purposefully developed to study organizational adoption of technological innovation by Tornatzky and Fleisher [84] consist of 3 elements; technological context, the organizational context, and the environmental context. Technological and environmental facts are external influences on the ‘organization’. The ‘organization’ component of TOE framework is likened to the Mobile payment ecosystem. Therefore, the TOE framework is appropriate to classify mobile payments research and other external factors which are characteristic of mobile payment services markets.

2.3 Methodology for Review

Papers retrieved were from both academic source (peer-reviewed, working papers, conference papers) and practitioner sources (non-peer reviewed consultant report, technical reports). Google scholar does harness articles of these varied sources aforementioned. The search parameters were “Mobile Payments”; “Mobile Payments in developing countries” or “Mobile Payments in Africa” with time frame (2007-2017). Thereafter Elsevier’s Scopus which is one of the largest abstracts and citation databases of peer-reviewed literature was chosen. Out of about 36,377 titles, 34,346 are peer-reviewed journals in top-level subject fields are represented in Scopus serving as great academic source. IEEE which is a database with engineering or technology inclination was also searched into with the same parameters. Upon critical examination of the papers, abstracts or citation that was spooled as search results, few represented studies conducted in sub Saharan Africa on Mobile payments. In this regard, the next searches were purposefully made in INFORMS- information systems, Africa Journals online and Wiley Online Library (specifically Electronic Journal of Information Systems in Developing Countries) because these journals are skewed towards developing countries including African countries respectively. The search was conducted using similar parameters stated early on within 2007-2017.

Table 1.0 Electronic Databases

Electronic data-base	Search Description	Number of articles
EBSCO ISTA	Mobile payment	10352
	Mobile payment in developing countries (Academic journals, magazines & trade publications, English, Kenya, Africa)	6
IEEEExplore	Mobile payment	3198
	Mobile payment in developing countries	28
INFORMS - Information Systems	Mobile payment	113
	Mobile payment in developing countries	43
Scopus	Mobile payment in developing countries	27
African Journals online (AJOL)	Mobile payment	1
Wiley Online Library (EJISDC)	Mobile Payment	159

Google Scholar	Mobile Payment	
	Mobile Payment in developing country	7

51 articles drawn from the search were critically examined with a few eliminated. The criteria for elimination were studies conducted in developing countries but not within Sub-Saharan Africa, studies conducted in no stated location though tagged as developing country, books and periodicals. Books were exempted as they are good for understanding concepts, theories and conceptual frameworks and periodicals has some level of uncertain accuracy [9]. 37 articles were left for the intended review (List shown in Appendix A).

Table 2.0 Electronic Database with corresponding articles retrieved

Electronic database	Number of articles
EBSCO ISTA	3
IEEEExplore	3
Scopus	12
African Journals online (AJOL)	1
Google scholar	7
Wiley Online Library (EJISDC)	11

3 Presentation of Findings

The findings attained after reviewing the 31 articles were classified and represented subsequently

3.1 Publication Year and Outlets

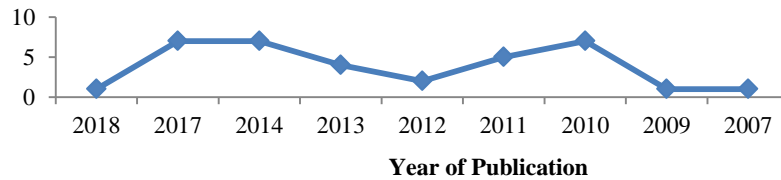


Figure 2. Articles Distribution (2007-2018)

About 31% of the articles were from the journal, Electronic Journal of Information Systems for Developing Countries (EJISDC) with 6% each retrieved from The Journal of Language, Technology & Entrepreneurship in Africa and IEEE

3.2 Geographical concentration and Authorship

The geographical location category tagged Africa is representative of studies conducted with holistic view of all countries on the continent or comparative analysis of two African countries; 26% of such studies were found. This was the highest followed by Kenya of about 17 % with Ghana, Nigeria, Tanzania and Malawi pooling 9% each. Other countries like Zimbabwe, Mauritius and Egypt were represented though marginally. In terms of authorship, all with the exception of Irwin Brown of South Africa, whose name appeared in two publications, the rest appeared once.

Nature of the Studies

Most of the studies reviewed on a yearly basis showed the nature of conceptual study which basically took the form of narrative or case study analysis and document

analysis, others showed evidence of field data thus empirical in nature then there were a few which had traits of both conceptual and empirical in the study hence tagged as “Mixed” in this study.

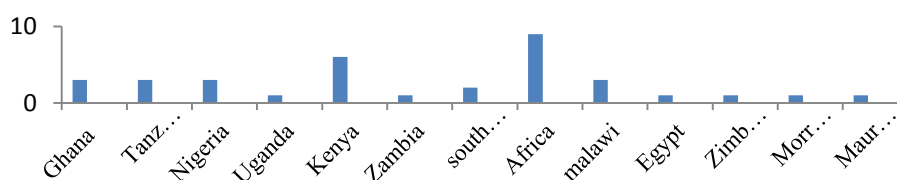


Figure 3. Geographical concentration

3.3 Research Themes

Using the Tag Numbers of the articles shown in Appendix A, the respective classification of literature earmarked showed that most of the studies were oriented towards the technological platforms that aid in mobile payment services or mobile banking services followed by Consumer adoption, the Socio-cultural changes or contextual changes. Studies on Traditional payments were the least represented.

Table 3.0 Classification of Articles based on Research Themes

Changes In Technology	Changes In Socio-Cultural	Changes In Regulatory	Traditional Payments	E-Payments	Consumer Power(Adoption & Usage)	Merchant Power	Rivalry Among MNOs
3, 8 14, 15 17, 18, 19, 32 27, 13	13 34 35	7 22 28		20, 21 23, 27 13	1, 5 9, 16 25, 0	6, 24 26,11 31.	2, 4 10,1 2

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3.4 Research Frameworks

Table 4.0 Research Themes with Respective Dominant Theories Used

Changes in Technology	System Development process framework Most were of narrative or case study nature with no specific theory
Sociocultural Changes	Review of related work 3Cs used by Kalakota and Whinston (2002); The New Institutional Economics approach (NIE)
Regulatory Changes	Activity Theory

Traditional Payments Repayment	None TAM,DOI, Revised UTAUT
Consumer power	TAM, Extended TAM with environmental variables
Merchant Power	multilevel perspective of sociotechnical trans- formation (MLP),Actor Network Theory
Rivalry among MNOs	

3.5 Research Methodology

Most of the studies were exploratory in nature followed by few others that used empirical data to validate models and ascertaining relationships among determinants. The least representation was the approach of using both quantitative and qualitative methods.

3.6 Level of Analysis

In the analysis of the studies, there were those whose focus where on individuals or consumers (Micro level), then those that looked within the industry or business sector (Meso level), nationwide (Macro) and inter country or regional analysis (Meta).

Table 5.0 Level of Analysis

Micro	Meso	Macro	Meta
1, 5, 6, 9, 24, 25,26,34,37,	1 0 1 1 1	3,4,7,8,16,1 7,18,19,20,21, 22,23,29,31,3 5,	2,14, 15,27,28,3 2, 33,36

Most of the analyses were based on the national level moving on to Meta level of studies.

4 4 Discussion of Findings

4.1 Publication Year and Outlets

The publications over the period, which were exclusively centered on Sub-Saharan Africa, were scanty in nature though quite a sizeable number that were retrieved focused on developing countries. This scanty representation is a confirmation of Boadi et al. [8] observation. Thus, the lack of contributions to global m-commerce debate from African perspective is rather parsimonious. The outlets from which these publications were found seemed narrowed as majority were from EJISDC whilst the rest were sparsely distributed in other outlets

4.2 Geographical concentration and Authorship

Though there were countries almost from East, West, Central, South and North of the African continent, the concentration was mainly in Kenya .Most of the studies grounded their argument on the fact that the success story of M-Pesa in Kenya has

sparked a lot of interest amongst researchers on the continent hence most of the studies if wasn't conducted in Kenya, had direct references to M-Pesa as case study.

4.3 Research themes and Sub-themes

Changes in Technology

Most of the studies were more into technological framework of mobile payment platform, drawbacks or challenges pertaining to the adoption of mobile technology among others. The drawbacks identified were cybercrime, resistance to change, and compatibility of mobile gadgets. On the other hand, few of the studies found that of group meetings. Mobile-banking applications have the potential to encourage financial discipline in even more effective ways. Further to, some of the studies developed mobile payment solutions e.g. The web API developed for Orange Money shows how secure access can aid in the development of mobile applications using Orange Money as mobile payment per articles reviewed represented in Appendix with tag[14,17].

Changes in Socio-Cultural factors

The political environments as well as quality of existing retail infrastructure, regulatory contribute to the impact of mobile technology but the study did not restrict itself to only socio-cultural factors. Nevertheless, values appealing to rural dwellers are cost, convenience and communication due to the nature of social interaction among especially rural dwellers [8].

Changes in Regulatory factors

Regulatory factors like authorization of payment institutions, surveillance of money transfers, and ownership of foreign currency accounts were identified as key factors that influence the quality of the Mobile payment system. One of the studies tagged [22] as shown in Appendix explored the framework that best fit the Nigerian context and regulatory factors happen to be an area which needed further investigation.

Consumer Power

Similar to the findings of the reviews conducted by Dahlberg et al. [14] and Dahlberg et al. [15], consumer adoption issues have been well researched into [89-92]. Mostly, factors determining adoption were found to be ease of use and risk perception; serving as most influential factors in mobile banking adoption; cultural values influencing factor in adoption; using early adopters as ambassadors; membership of an association (social influence) serve as factor for adoption were picked up from the reviewed articles [1,16,26,30].

Merchant Power

Most of the merchant adoption studies reviewed was narrowed to the Agriculture sector. It dwelt basically on microbusinesses or micro entrepreneurs in the markets, fishing communities. It was found in one of the studies represented that Mobile money facilitate growth in business [6]; Use of mobile phones enabled fishermen to improve their incomes, expand their markets, feel more secure at sea, and remain in closer touch with both families and other fishermen[24].

Traditional payments

Similar to what was found in earlier reviews [14, 15], virtually none of the studies dwelt on the traditional form of payments. There is always a need to review earlier

forms of payments, examine the flaws and setbacks in order to strengthen the numerous electronic payments products being introduced into the market

Electronic payments

The studies under this classification took a look specifically at mobile banking and mobile payments as a form of electronic payments and the institutional set up required to implement them. There was also a comparative analysis done between mobile payment systems and the traditional systems with no reference to the other forms of electronic products like electronic cards[21].

Rivalry among MNOs

As Mobile payment system was conceived as multi-sided platform, the studies in this category looked at the various constituents of such platform and proposed different business levels; bank independent, collaborative nature, MNO led or Bank dependent. Each of the business proposal obviously comes with various forms of ‘rivalry’[4].

4.4 Research Frameworks

Technology Acceptance Model (TAM) was highly used in relation to Consumer and Merchant adoption and usage. This was followed by Diffusion of Innovations (DOI) theory then Unified theory of Acceptance and Use of Technology (UTAUT). However, the TAM was extended with other environmental factors in some cases when was used as theoretical basis in Merchant adoption. The same occurred for UTAUT. This is similar to an earlier study which found that, the conceptual model mostly used in mobile technology adoption has been found to be Technology Acceptance Model (TAM) then UTAUT the third widely used..

4.5 Research Methodology

Qualitative research seeks to understand situations in their uniqueness as part of a particular context and the interactions there whilst Quantitative research determines the extent of a problem or existence of a relationship [9]. Usually as qualitative research seeks to explore phenomenon which should be tested using quantitative methodology, the studies under review did not show this trend. There are 11 studies using qualitative methodology and only 6 using quantitative. There are bound to be knowledge gap between phenomenon explored and the confirmation of hypothesis about the phenomenon. Mixed form of methodology is highly commendable both approaches are carried out in one study bringing some level of finality to nature of the study. Notably, the dominant methods used for qualitative approach were observations, interviews, focus groups; case studies whilst survey characterized most of the studies conducted using quantitative study.

4.6 Level of Analysis

The national outlook of analysis took the form of analyzing contextual, regulatory, technological framework that either ensures successful implementation of mobile technology or also ensures sustenance. Meta, the inter-national or regional level of analysis was the next predominant level along with micro. For the latter, most of the studies had Kenya M-Pesa case as the reference point of analysis. The studies that entailed the comparative analysis of two African countries was either between Kenya and another African country.

5 5 Research Gaps and Future Research

This study identified Contextual, Theoretical and Methodological gaps as was found in earlier studies [22][16].

5.1 Contextual Gaps

As was earlier mentioned, due to the M-peas success story in Kenya, it was expected that most of the countries on the continent should record same. However, this has not been the case hence further investigations need to be conducted to understand the factors determining the disparities in adoption even in Kenya.

5.2 Theoretical gaps

Although earlier studies used TAM to explain the adoption of m-payment services, to the authors' best knowledge, few studies have focused on the impact of user-centric, security factors, system characteristics and gender differences on m-payment adoption by the general public in Tanzania.

5.3 Methodological

Fewer studies have undertaken exploratory form of research to have a deeper understanding of the interactions and relationships that are created amongst stakeholders of a national mobile payment system and by so doing build on theories thus using interpretive approach.

Additional to the three forms of gaps identified is undeniably the unfortunate dearth of studies that examine the limitations of mobile money implementations and provide recommendations for improving this important tool for financial inclusion and a lack of African perspective in the debate surrounding global m-commerce debate.

5.4 Direction of Future Research

Studies likely to be conducted in the future on the basis of the eight classifications of literature are as follows

Changes in Technology

The mobile solution requirements needed by merchants would have to be looked at and examine how they could participate in the development of these solutions. In addition, studies should look at how fruitful and profitable collaboration could be carried out between developers of innovative solutions and telecom operators.

Changes in Socio-cultural factors

A few of the studies on adoption looked into the rural setting which is characterized by several unique socio-cultural factors hence further studies could look at different settings either urban or even national or Regional. This will aid in determining the unique factors that distinguish between different contexts.

iii. Changes in Regulatory system

The business model opted for by a country determines the nature of regulation to be conducted. Therefore, investigations into the different proposed business models and how regulatory systems are to be changed to reflect this choice would be required.

Consumer adoption

Thoroughly researched but further studies could be conducted to extend the theories used for adoption to include the outcome or impact of adoption and post adoption behaviors (continual use or addiction)

v. Merchant adoption

Factors that facilitate adoption by Merchants or micro-entrepreneurs of various business sectors should be determined. Though studies focused more on Agriculture sector, other sectors could be look at.

E -payment Systems

Further studies could be conducted to have a comparative study of all electronic payment systems and to understand the nature of usage at the macro level to find out which of the e-payment systems could drive the cashless economy agenda of most developing countries

Traditional Payments

Studies would have to examine the characteristics of the various scenarios for which traditional payment is applicable and also the flaws plaguing it and how knowledge of this could be used to enhance the mobile payment platform

Rivalry among MNOs

Looking forward to providing a business model that would suit the context within which mobile payment systems are to be introduced. A thorough investigations into which type of model suit a particular defined context.

6 Conclusion

The influx of mobile phones worldwide has given way to mobility digital systems aiding varying businesses. The Sub Saharan Africa has enjoyed a large part of the coverage. In order to strengthen the field, there was a need to review literature and to be informed of the knowledge gaps setting agenda for researchers and practitioners. This study focused on studies conducted in the sub region and drew from TOE framework and Porter's five competitive forces to classify the literature. There weren't many articles found in the limited outlets available. Merchant adoption, Consumer adoption and Changes in Technology were found to be well researched similar to earlier reviews by Dahlberg et. al [14] and Dahlberg et al. [15]. Most of the analysis were based on Micro and Macro levels thus consumer and nationwide levels as well as inter-national or regional analysis. These findings led to the identification of contextual, theoretical and methodological gaps and hitherto chart the path for the nature of studies to be undertaken by researchers.

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Appendix

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11	2014	Dismas Anthony ² and Darlene K. Mutalemwa	Factors Influencing The Use Of Mobile Payments In Tanzania: Insights From Zantel's Z-Pesa1 Services.

12	2014	Ricardo Harry Kosheek Sewchurran Irwin Brown	Introducing A Mobile Payment System To An Emerging Economy's Mobile Phone Subscriber Market. An Actor Network Perspective
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14	2014	Jake Kendall and Rodger Voorhies	The Mobile-Finance Revolution: How Cell Phones Can Spur Development
15	2014	Dibia Victor	On The User-Centric Evolution Of Mobile Money Technologies In Developing Nations: Successes And Lessons.
16	2013	Berrado, A., Elfahli, S., El Garah, W.	Using Data Mining Techniques To Investigate The Factors Influencing Mobile Payment Adoption In Morocco
17	2013	Doolhur, N., Suddul, G., Foogooa, R., Richomme, M.	An Open API To Monetize Mobile Micro-Services For Emerging Countries
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20	2012	Suri, Tavneet; Jack, Wil- liam; Stoker, Thomas M	Documenting The Birth Of A Financial Economy.
21	2012	Kabanda, S.K., Downes, A., Baltazar Dos Ramos, S.	Mobile Banking Services In South Africa: The Case Of M- Pesa
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25	2011	Felix O. Bankole, Omolola O. Bankole, Irwin Brown	Mobile Banking Adoption In Nigeria
26	2011	Bjorn Furuholt, Edmund Matotay	The Developmental Contribution From Mobile Phones Across The Agricultural Value Chain In Rural Africa
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28	2010	Brown, Bethany.	Mobile Phones: Reshaping The Flow Of Urban-To-Rural Remittances.
30	2010	Benjamin Ngugi, Matthew Pelowski, Javier Gordon Ogembo	M-Pesa: A Case Study Of The Critical Early Adopters' Role In The Rapid Adoption Of Mobile Money Banking In Kenya
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