International Journal of Engineering & Technology, 7 (3.20) (2018) 304-310

International Journal of Engineering & Technology

Website: www.sciencepubco.com/index.php/IJET

Research paper

Collaborative Mobile Money Service Provision: Recommendations for National Issues

[1]Azza Zeinelabdin, Karrar and [2]Azizah, Abdul Rahman

[1]Computer Science Department, Faculty of Mathematical Sciences, University of Khartoum, Sudan
[2]Information Systems Department, Faculty of Computing, Universiti Teknologi Malaysia, Malaysia
**Corresponding Author Email: azizahar@utm.my; azkarrar@uofk.edu*

Abstract

Recently, the developing countries are considering the development of mobile money ecosystems that supports more inclusive financial systems to overcome the high financial exclusion of their population. Such ecosystems can be enabled by facilitating the collaboration between diverse stakeholders from different sectors: financial, telecommunication, regulatory bodies and IT service providers. This development of mobile money ecosystem emphasized on considering existing issues of main stakeholders' and their conflicting interests. The aim of this paper is to discuss set of recommendations that can help in resolving national issues when participating in collaborative mobile money ecosystem. The research used the Sudanese national mobile money project as case study. The data collection method was qualitative interpretive interviews with different stakeholders in different sectors in Sudan. The researchers analyzed the collected data using qualitative data analysis approach. The results of the analysis focus on representing the multiple perspectives of stakeholders on each identified government's issue. The research identified six national issues and the interrelation between these issues. The identified issues are: non utilized huge deposits, accountability of big transactions amount, strict customer registration procedures, unsatisfying batch processing, responsibility of customer management and monitoring international remittances. These findings contribute toward better understanding to the mobile money ecosystem in Sudan from government's perspective. This understanding can facilitate building successful value propositions between mobile money stakeholders which can results in better financial services.

Keywords: *Collaborative service provision, Government issues, Mobile money, Qualitative analysis, Sudan.*

1. Introduction

Mobile money is the use of mobile phone to access financial services by unbanked users who do not previously connected to formal financial services (GSMA, 2010). In the basic mobile money scenario, users use the stored air time at their mobile phones as electronic money that can be transferred to other users' mobile phones (Hughes & Lonie, 2007). This electronic money can be used as substitute to cash. Users need to deal with agents to convert from electronic money to cash (cash in) or vice versa (cash out). These agents are normal retail stores or individuals who are representing the mobile money service provider (Pearce, 2011).

In the recent years many mobile money deployments were initiated in different developing countries because mobile phones are highly penetrated between unbanked users unlike any other alternative ICT tools (Borg & Persson, 2010; GSMA-MMU, 2015; Mas, 2009; Mendes, 2007). These mobile money deployments provide financial services through big number of agents near to unbanked customers which improve the access to the financial services. However, access is only one dimension of financial inclusion. Consequently, many governments in developing countries are paying special interest into providing national wide mobile money ecosystems that can help in reduce the high number of its financially excluded populations (Davidson, 2011; Dlodlo, 2015; Fernando, 2014; George, Stryjak, Meloán, & Castells, 2015; Penicaud & Katakam, 2013; Scharwatt, Katakam, Frydrych, Murphy, & Naghavi, 2014; Vonthron & Williamson, 2015). These ecosystems are referred to as inclusive mobile money ecosystems. mobile money ecosystem is defined as " the networks of organizations and individuals that must be in place to mobile money services to take root, proliferate and go to scale" (Jenkins, 2008). Governments in developing countries support initiation of national wide mobile money deployments that is provided collaboratively by multiple stakeholders. Such national deployments will support the other two financial inclusion dimensions: usage and quality. To realize such ecosystems, number of different stakeholders' issues need to be resolved.

In 2011 the Sudanese government represented by the central bank of Sudan (CBOS) declared its new vision about developing a national wide mobile money ecosystem where different stakeholders such as banks, mobile network operators (MNOs), microfinance institutions (MFIs) and other government agencies will participated in. The new suggested ecosystem should provide different roles to each sector to guarantee the support for the scope and scale of the services as well as limiting the competition drawbacks and help in delivering number of financial services with good quality to the biggest number of user as previously supported by different authors (Firpo, 2009; Ivatury & Mas, 2008; Must & Ludewig, 2010).

However, previous study about the different stakeholders in mobile money ecosystem in Sudan, (Karrar & Abdul Rahman, 2013) shows conflicting interests of different stakeholders and their resistance to the national project due to unconsidered needs and existing issues in collaborative mobile money service provision. Also the study shows how different stakeholder's issues are isolated and not considers the other stakeholders point of view. More specifically, business side stakeholders reported that although government is supporting the collaboration initiative, it still hinder the formulation of final business model for the national project (Karrar & Abdul Rahman, 2015). Therefore, this paper aims to provide set of recommendations that could help in resolving existing government issues that hinder the formulation of collaborative mobile money ecosystem.

In this paper a case study on Sudanese mobile money national project is presented and an empirical data was collected to assist in understanding the existing the government's issues that face the collaborative mobile money service provision. Interpretive interviews were used to gather qualitative data by interviewing representatives of main mobile money stakeholders. Then data was systematically analyzed to determine what the main issues are. The analysis also identified set of recommendations consider the different stakeholders This paper main contribution is to provide understanding for mobile money ecosystem government's issues in Sudan and to provide recommendations to resolve these issues. These recommendations are formulated based on suggested solutions from different stakeholders which help in providing a multi-perspective understanding to the possible solutions.

This paper organized as follow: Section 2 presents a brief summary to the current Sudanese mobile money situation and highlights for the future national project are introduced. Section 3 provides a description to the research methods used in data collection and analysis are provided. In Section 4, the findings of the analysis are presented and discussed. Finally, conclusions and directions for future work are provided.

2. Current Situation in Sudan

Current mobile money practices in Sudan are led by mobile network operators (MNOs) but for limited range of services such as prepaid and postpaid reloads (Amin, 2012). MNOs uses a franchising business model that involves licensing of trademarks and methods of doing business with small number of direct agents for cash in and their services used mainly for remittances. MNOs customers are using the current available services from their operators and MNOs reports that the number of transactions done per month is huge compared to other similar deployments in other developing countries due to the unavailability of formal financial services in rural areas and the immigration of many citizen to urban areas leaving their families in their home villages and need to send regular remittances to them (Mutong'Wa, Campus, Khaemba, & Mengich, 2014).

MNOs customers use the scratch cards to cash in but for cash out they have to pay a high commissions (up to 10%) in each transaction which considered very high. Moreover, the cash out agents are informal agents where no legal regulations are used to protect customers. In the current situation the methods of cash out are not yet standardized. Another issue for the customer is the absent of interoperability between MNOs so transfers must be done with in the same network (Horus, 2011).

On the other hand, banking sector in Sudan is focusing on additive mobile banking models (Dermish, Kneiding, Leishman, & Mas, 2011) where mobile is used to retain the existing bank customer by providing additional channel to access customer accounts. The banked customers who are connected to the formal financial system are small compared to the large customer base of the MNOs' customers (Omerabi, 2014). The distribution of bank branches in urban areas not rural one and the requirements for know your customer (NYC) make it difficult to attract the unbanked. Also the banks are not interested in providing retail financial transactions. Retail financial transactions usually have high transaction processing fees due to its low volume and frequent use (CBOS, 2012, 2014). With the possibility of mobile money platform banks may consider to join the new ecosystem for new customer acquisition but will faced with the dominancy of the MNOs with the already existing customers, distribution networks and experience in service provision.

In 2011 the MNOs starts a new business with the Sudanese national electricity corporation (NEC) to sells electricity to customers using their mobile phones and this raised a serious issue of money creation, due to the absent of the regulations and standards for mobile money control by central bank of Sudan (CBOS) who starts to realize the importance of developing a speed solution to this problem.

Government interests are represented by two regulating bodies: central bank of Sudan (CBOS) which regulate the banking sector and the national telecommunication corporation (NTC) which regulate the telecommunication sector. In May 2011, CBOS given an initial approval to build and manage a collaborative mobile money platform. The project main goal is to increase the financial inclusion in the country. Moreover, the new project aims to provide a mobile money ecosystem that is interoperable and consist of all the banks, MNOs, MFIs and any other institutes that willing to enter the market of mobile banking service provision. A steering committee for the national project is initiated. Currently the committee in the phase of defining complete electronic banking and mobile money business model that define each player's role as multiple entities are involved. The basic idea is to keep the overall process same as the current working system where central entity act as controller (CBOS) and the current switch operator for the banks (EBS) as the executive of the new mobile money platform.

3. Methodology

An explorative case study (Stake & Savolainen, 1995) was chosen as strategy for this research. This choice based on the nature of mobile money ecosystem for IFS context as it is relatively new and it needs an in-depth investigation. The investigation targets demarcation of the main aspects of collaboration between the main stakeholders and their interrelatedness using a multiple sources of evidences. The case design was single case with multiple embedded design contains mobile money for IFS in developing countries as the overall case context. The research focused of a specific case: "the Sudanese national project for mobile money for inclusive financial systems" as single case to be studied. The unit of analysis is inter-organizational collaboration practices between main mobile money service providers. The embedded case design was chosen because the nature of this study where collaboration is involving multiple mobile money service providers. Each stakeholder has its needs to be fulfilled as well as the overall national goal (IFS) to be met. So targeting a single national level (Sudan) as a case and embedding multiple unit of analysis (collaboration practices in different sectors) enable the researcher from capturing the multiple perspectives of different stakeholders as well as the two level representations.

The Sudanese mobile money national project was chosen as a single case to focus on for the following case selection criteria's (Stake & Savolainen, 1995; Yin, 2003): First few cases in developing countries applying mobile money at national level where multiple stakeholders are involved and the IFS is the goal of the government. Second, the feasibility of accessing the case materials due to the researcher background and previous work experience which enable the access to the top level national committee members and decision makers in the Sudanese context which is not feasible in other countries.

A qualitative approach is used for data collection and analysis. Interviews was the primary source of evidence with two other supportive sources of evidences to realize the data source triangulation as recommended by (Stake & Savolainen, 1995; Yin, 2003). The supportive sources were institutional documentation (annual reports, administrative documents and meeting minutes) and archival records (organization charts and website information). Interviews are considered by (Walsham, 1995) as the suitable source of

evidence in qualitative case studies because it enables the researcher from directly access the participants' interpretations about the current events and actions as well as expressing their goals and other participants views. Consequently, qualitative interview (Yin, 2010) is used as data collection method in this research. The selection of interpretive case was imposed by the necessity to understand the stakeholders' needs in collaborative mobile money ecosystem based on the different involved participants' interpretations. The different interpretations facilitate the shared understanding between stakeholders and highlight the conflicting interests. A mental framework is developed by the researchers and reflected by designing an interview protocol which contains a set of main interviewing themes. Details of these main themes are provided in Table 1

Table 1 Main Interviewing Themes

Main Theme	Description
Current practices	The current existing practices of mobile money in the institute
Existing barriers	The existing barriers of the current practices
Current activities	The main activities that the institute carry it on to provide money service to its customers
Current products	The current mobile money products or services that the institute provide to its customer
Future opportunities	The institute's future opportunities of mobile money
Expected partners	The expected stakeholders in a national collaborative mobile money service
Expected roles	The institute preferred roles in the national mobile national collaborative mobile money service
Available resource	The strength of the institute in terms of important available resources
Resource Needs	The weaknesses of the institute in terms of important needed resources

In total, 8 case cites representing different involved stakeholders' sectors were selected. Interviewees were selected based on their positions and expertise in different fields and sectors that represents the supply side stakeholders mainly: the financial service provision, Telecommunication, financial services regulators bodies, IT service provider.

The research adopts an iterative flexible purposeful sampling strategy. Flexible and iterative research designs and sampling support the qualitative research reflexivity and better results (Cohen & Crabtree, 2006). In purposeful sampling strategy the researcher actively selects the most productive sample that can answers the research questions (Marshall, 1996). To do such a selection a number of criteria's are defined to assist the informant's selection process. The researcher was looking for a key informant sample with specific experiences in mobile money and inclusive finance in general and in the national mobile money projects specifically.

To identify those key informants a snowballing approach (Biernacki & Waldorf, 1981) is applied where gatekeeper recommends set of experienced other informants in different sectors who in term become a gatekeepers and recommends others. A total of 17 interviews were conducted in 3 months period and faced with obstacles represented in long time required to prepare for each interview as most of the interviewees were in sensitive and senior positions and always busy and hard to reach. Summary to the interview respondents' profile is shown in Table 2.

Table 2: Included stakeholders interviewing profile

Respondent Position	#Interviews	# Supportive evi	Stakeholder
Project manager	1	4	Regulators
Information technology directorate	1		
General manager	2		
Business solution specialist	1	3	MNOs
Business planning and Strategy-Senior Manager	1		
Information security specialist	1		
Products & services senior manager	1		
Business development director	1		
Switch manager-it department	3	2	Banks
Switch manager-it department	1		
General Manager Main gatekeeper	4	3	Switching Operator
Total	**17**	**12**	

The study sample size (8 case sites and 17 respondents) is considered acceptable based on many previous qualitative research sampling guidelines [16-18]. Moreover, Creswell's guideline where followed as the selected sectors in the analysis was represented with small number of case sites and respondents number were minimizes but the length and depth of the interviews were increased.

During the data collection phase interviews were transcribed then uploaded in NNivo 10 which was used as assistive computerized qualitative analysis tool. The data reduction and display were continues and iterative where the researcher codes the interviews' transcripts following a descriptive coding process. Then thematic coding is applied to categorize the identified stakeholders' issues and the related solutions that suggested by the respondents during the interviews. Final stage of the analysis was carried on a relational analysis of these categories were their interrelation is identified. The results of the analysis process are described in the following section. Figure 1 summarizes the step-by-step process of this research as it reported in this paper.

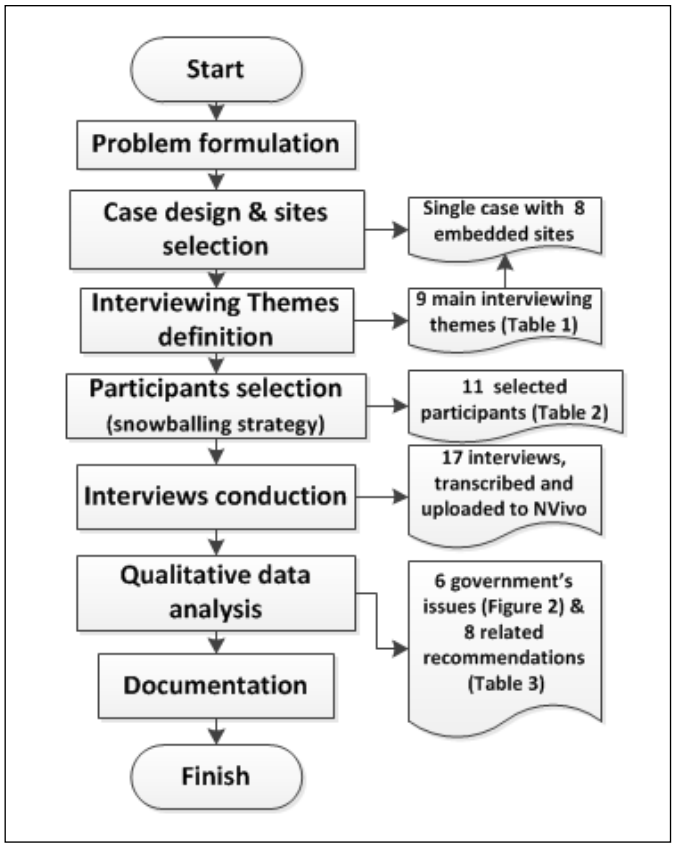

Figure 1. Research process summary

4. Results and Discussion

The qualitative data analysis identified six government issues that need to be considered before implementing the collaboration process in the future. These issues are: non utilized huge deposits, accountability of big transactions amount, strict customer registration procedures, unsatisfying batch processing, responsibility of customer management and monitoring international remittances. These issues are discussed in descending order according to their NVivo's referencing frequency. Figure 2 graphically summarizes the different government issues ordered based on their number of sources and number of coding references that provided by NVivo software. Number of sources summarizes the number of NVivo's sources –interview or institutional document- that the issue mentioned in. For full details about these identified issue and their support of quotes from the case data see (Karrar & Abdul Rahman, 2016). The selection of the case respondents were focus on experts from different sectors as described in details in the previous section. The experience of those respondents helped the researchers to ask during the interviews about the possible solutions to the identified issues. Later during the qualitative analysis the interrelation between these issues and their suggested solutions were identified using NVivo query results that shows the existing codes between two intersecting nodes issue and possible recommendation as shown in Figure 3 below.

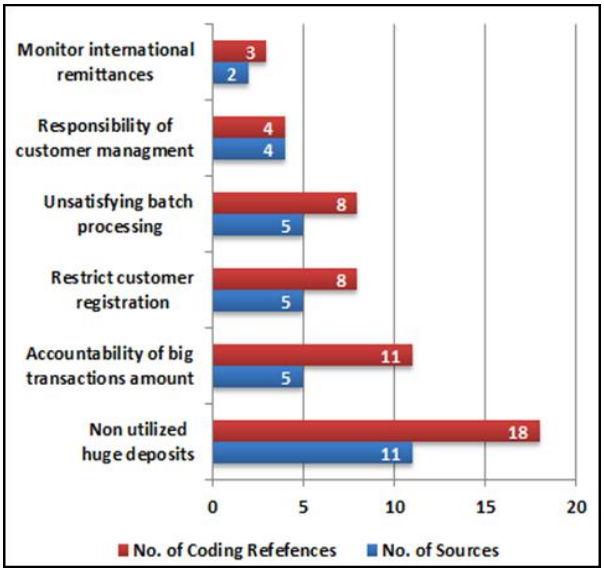

Figure 2: Summary of government's issues based on NVivo number of coding references

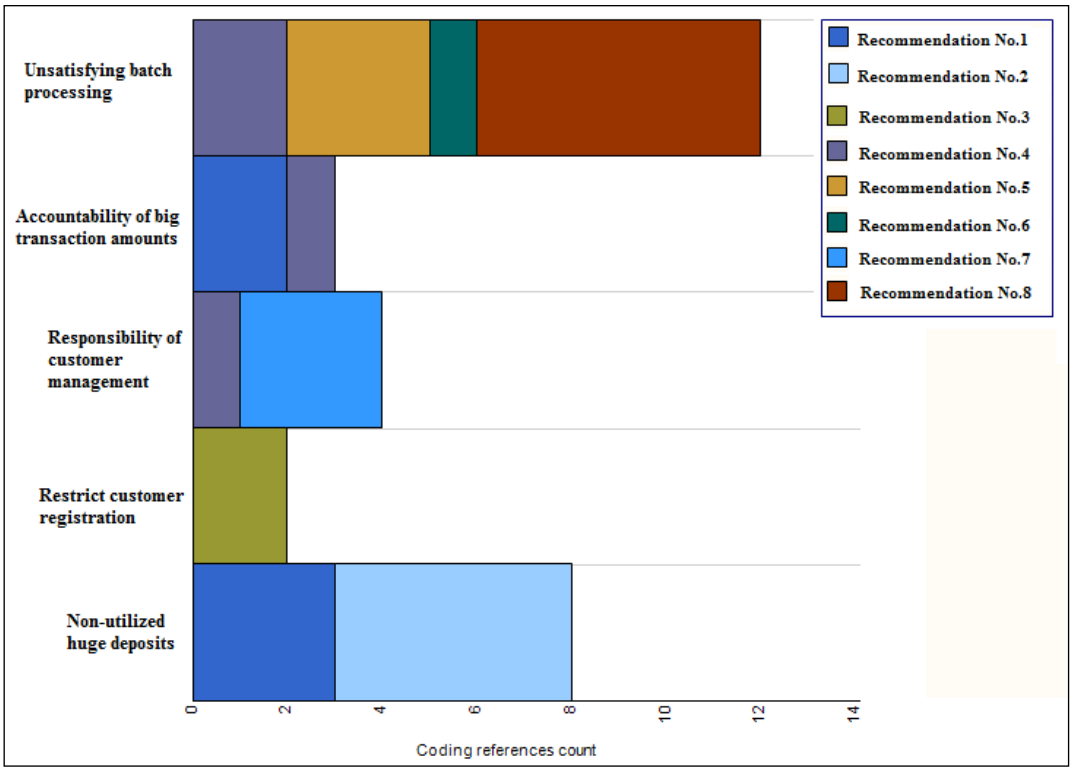

Figure 3 Summary of the interrelation between government's issues and the suggested recommendations

Then the researchers investigated these codes to confirm the existing logic and the relationship between the issues and the recommendations. Finally the recommendations and the related issues are summarized in Table 3 below.

Table 3: Recommendations to resolve the government's identified issues

No.	Recommendations	Related Issues
1	Gradual implementation of the m-money national project starts by partnership to gain customer trust and increase usability. Initial stage - simple financial services- then move to next advance stage- sophisticated financial service	- Non utilized huge deposits - Accountability of big transaction amounts
2	Not allowing the MNOs from selecting the partnerships based on non-ethical bases (instead encourage the MNOs by providing set of regulations that allow them benefits from their deposits). In addition to provision of awareness to the business side stakeholders specially bank - by the future benefits that can be gained from provide (VAS)	- Non utilized huge deposits
3	Segmentation of customer registration	- Restrict customer registration
4	Starts by partnerships to gain customer trust and increase usability (First stage).	- Responsibility of customer management - Unsatisfying batch processing - Accountability of big transaction amounts
5	Add sophisticated agent network building as a basic activity (role) in the first stage with introduction of new stakeholder that builds an interoperable network of POSs for new agents.	- Unsatisfying batch processing
6	Government need to support the usability of the m-money service by use the e-money in G2P transaction as soon as possible	- Unsatisfying batch processing
7	Unified customer service managed by MNOs	- Responsibility of customer management
8	Replace the batch or offline processing by allow the use of instant credit advice regulation. In addition banks must focus on design new financial services that suit the merchants as target customers.	- Unsatisfying batch processing

In the following paragraphs details about the interrelation between the identified issues and the suggested recommendations are presented and discussed.

First, to resolve the non-utilized huge deposits issue, government is recommended to encourage the MNOs by providing set of regulations that allow them to benefits from their already existing huge deposits. This way government will eliminate the current MNOs' practice of selecting the partnerships with banks based on non-ethical bases. After implementing the new suggested regulations, these huge deposits will enter the formal financial system and could be invested so it can benefit the national economy as well as the MNOs.

Second, to resolve the accountability of big transaction amounts and the restrict customer registration issues segmentation of customer registration is recommended. Customer segmentation refers to define a different segment of customers based on the amount and type of their transactions. This relaxes the registration procedures and the KYC requirements to the lower segments of customers (low transaction amount), and increases it for the

higher segments. The segmentation of customer registration helps in avoiding the restricted customer registration procedure which can result in fewer customers adopting the m-money service.

Third, to resolve the issue of responsibility of customer management is very sensitive and important issue because failure to handle the customer may results in the losing of customer trust. Losing customer trust can affect the whole mobile money service. To avoid such failure, stakeholders are recommended to collaborate and accept a unified customer service that managed by MNOs. MNOs were selected because they already have the resources and experience to handle the customers. And they already have the customer trust. This will reduce the cost and risk of customer management.

Fourth, to resolve the unsatisfying batch processing issue, government can set regulations that enable instant credit advice procedure to replace the batch or offline processing. This will encourage the merchants to accept and use mobile money as mean of payment which will minimize the need for cash out procedure. This also will results on increasing the access and usage dimensions of the IFS.

Finally, a gradual implementation of the m-money national project is recommended. This gradual implementation can starts by partnership between different stakeholders to gain customer trust and increase usability. Two different stages are suggested for this implementation. (1) Initial stage were simple financial services are provided. (2) Advance stage were sophisticated financial services are designed and implemented by different stakeholders based on their specialization. These future services are value added services (VAS) that provided using the already existing collaborative platform and can enable IFS by increasing the usage to financial services as well improving the quality of these services.

5. Conclusion

This study focus specifically on resolving the national issues that faced during the establishment of collaborative mobile money platform. The study provided a set of issues that can form a base for possible recommended value exchanges that can guide the collaboration process between different stakeholders. The study identified the national issues that hinder the participation in national interoperable system and suggests possible recommendations that can help in resolving some of these issues.

Future work will focus on translating the findings of this paper into action plan to the telecommunication regulator regarding future implementation of the collaborative mobile money service provision policy. Moreover the relationships between the identified issues and other collaboration aspects such as expected benefits and different stakeholders' needs must be studied to enable the complete definition of the possible value propositions between different stakeholders.

Also future work will use the service science and value network concepts to design business to business (B2B) collaboration that can grantee value co-creation between different stakeholders and means for governing and controlling their interactions. Also the value network modelling techniques and analysis approaches can be used to create a set of mobile money reference models that can be used in similar development of future mobile money ecosystems.

Acknowledgments

This research is fully supported by GUP grant, 0H13. The authors fully acknowledged Ministry of Higher Education (MOHE) and Universiti Teknologi Malaysia for the approved fund which makes this important research viable and effective.

References

[1] Amin, Izzeldin Kamil. (2012). Current Developments and Regulatory Trends in Electronic Communications Sector: Case for Developing Countries. NTC. Turkey Retrieved from http://www.tk.gov.tr/etkinlikler/uluslararasi_etkinlikler/dosyalar/Izzeldin%20Kamil%20Amin-Current%20Development%20and%20Regulatory%20Trends%20-%20Turkey.pdf

[2] Biernacki, Patrick, & Waldorf, Dan. (1981). Snowball sampling: Problems and techniques of chain referral sampling. Sociological methods & research, 10(2), 141-163.

[3] Borg, F., & Persson, M. (2010). Assessing Factors Influencing the Diffusion of Mobile Banking in South Africa-A case study on the company Wizzit. (Bachelor Industrial and Financial Managment), University of Gothenburg

[4] CBOS. (2012). Spread of Banks in Sudan. Retrieved 3-5-2015, from http://www.bankofsudan.org/arabic/id/bankingsystem/spread.pdf

[5] CBOS. (2014). Sudanese banking system: Banks. Retrieved 3-5-2015, from http://www.bankofsudan.org/arabic/id/bankingsystem/banks.htm

[6] Cohen, Deborah, & Crabtree, Benjamin. (2006). Qualitative research guidelines project.

[7] Davidson, N. . (2011). Mapping and effectively structuring operator-bank relationships to offer Mobile Money for the unbanked 2011 Mobile Money for the Unbanked Annual Report (pp. 19-38): GSMA Mobile Money for the Unbanked.

[8] Dermish, A., Kneiding, C., Leishman, P., & Mas, I. (2011). Branchless and Mobile Banking Solutions for the Poor: A Survey of the Literature. Innovations: Technology, Governance, Globalization, 6(4), 81-98.

[9] Dlodlo, Nobukhosi. (2015). The Use Of M-Payment Services In South Africa: A Value Based Perceptions Approach. International Business & Economics Research Journal 14(1), 159-178.

[10] Fernando, Nimal. (2014). power-national-targets-financial-inclusion. Retrieved from http://www.afi-global.org/blog/2014/01/23/power-national-targets-financial-inclusion

[11] Firpo, Janine. (2009). Banking the Unbanked: Issues in Designing Technology to Deliver Financial Services to the Poor. In I. Matthäus-Maier & J. D. Von Pischke (Eds.), New Partnerships for Innovation in Microfinance (pp. 194-206): Springer Berlin Heidelberg.

[12] George, David;, Stryjak, Jan ;, Meloán, Mike;, & Castells, Pau. (2015). The Mobile Economy 2015 Mobile Economy series (pp. 1-82). London, United Kingdom: GSM Association.

[13] GSMA-MMU. (2015). MMU Deployment Tracker. Retrieved 5th July 2015, from http://www.gsma.com/mobilefordevelopment/programmes/mobile-money-for-the-unbanked/insights/tracker

[14] GSMA. (2010). Mobile Money Definitions. from http://mmublog.org/wp-content/files_mf/mobilemoneydefinitionsnomarks.pdf

[15] Horus, Development Finance. (2011). Study For The Establishment Of Pro-Poor Branchless Banking In Sudan. Khartoum, Sudan Central Bank Of Sudan.

[16] Hughes, N., & Lonie, S. (2007). M-PESA: Mobile money for the unbanked: Turning cellphones into 24-hour tellers in Kenya. Innovations, 2(1-2), 63-81.

[17] Ivatury, G., & Mas, I. (2008). The early experience with branchless banking (pp. 1-16): Consultative Group to Assist the Poor (CGAP).

[18] Jenkins, B. (2008). Developing mobile money ecosystems. Washington, DC: International Finance Corporation and Harvard Kennedy School.

[19] Karrar, Azza Zeinelabdin, & Abdul Rahman, Azizah. (2013). A Stakeholder Analysis for Collaborative Mobile Money Service. Jurnal Teknologi, 64(1), 57- 65.

[20] Karrar, Azza Zeinelabdin, & Abdul Rahman, Azizah (2015). Mobile network operators' needs in collaborative mobile money service provision. ARPN Journal of Engineering and Applied Sciences 10(23), 17843-17852.

[21] Karrar, Azza Zeinelabdin, & Abdul Rahman, Azizah (2016, 5-7 April). National Issues Facing Collaborative Mobile Money Service Provision. Paper presented at the International Conference on ICT for Transformation (IC-ICT4T) 2016, Kota Kinabalu, Sabah, Malaysia.

[22] Marshall, Martin N. (1996). Sampling for qualitative research. Family

practice, 13(6), 522-526.
[23] Mas, I. (2009). The Economics of Branchless Banking. Innovations, 4(2), 57-75.
[24] Mendes, Shawn. (2007). The innovative use of mobile applications in the Philippines – lessons for Africa: Swedish international development cooperation agency (SIDA)
[25] Must, B., & Ludewig, K. (2010). Mobile money: cell phone banking in developing countries. Policy Matters 7(2), 27-33.
[26] Mutong'Wa, Sanja Michael, Campus, Gaba–Eldoret, Khaemba, Steve Wasilwa, & Mengich, Esau Mneria. (2014). A Comparative Study Of Critical Success Factors (CSFS) In Implementation Of Mobile Money Transfer Services In Kenya. European Journal of Engineering and Technology Vol, 2(2).
[27] Omerabi, Omer. (2014). Banking technology tool to achieve national goals. Report. Electronic Banking Services (EBS). Khartoum, Sudan.
[28] Pearce, Douglas. (2011). Financial Inclusion in the Middle East and North Africa: Analysis and Roadmap Recommendations World Bank Policy Research Working Paper Series: The World Bank.
[29] Penicaud, Claire, & Katakam, Arunjay. (2013). State of the industry 2013: Mobile Financial Services For The Unbanked (G. L. Office, Trans.) (pp. 1-71): GSMA-Mobile Money For the Unbancked (MMU).
[30] Scharwatt, Claire , Katakam, Arunjay , Frydrych, Jennifer , Murphy, Alix , & Naghavi, Nika (2014). State of the industry 2014: Mobile financial services for the unbanked GSMA Mobile Money for the Unbanked (MMU) program (pp. 76): GSM Association.
[31] Stake, Robert E, & Savolainen, Reijo. (1995). The art of case study research (Vol. 95004979): Sage publications Thousand Oaks, CA.
[32] Vonthron, Nicolas;, & Williamson, Chris. (2015). Understanding the potential of the mobile money ecosystem. Retrieved from http://www.gsma.com/mobilefordevelopment/understanding-the-potential-of-the-mobile-money-ecosystem
[33] Walsham, Geoff. (1995). Interpretive case studies in IS research: nature and method. European Journal of information systems, 4(2), 74-81.
[34] Yin, Robert K. (2003). Case study research design and methods Applied social research methods series (Vol. 5).
[35] Yin, Robert K. (2010). Qualitative research from start to finish: Guilford Press.