

A Stakeholder Analysis for Collaborative Mobile Money Service

Azza Z. Karrar,^{a,b*} Azizah Abdul Rahman^a

^aInformation Systems Department, Faculty of Computing, Universiti Teknologi Malaysia, 81310 UTM Johor Bahru, Johor, Malaysia

^bComputer Department, Faculty of Mathematical Sciences, University of Khartoum, Sudan

*Corresponding author: zkazza2@utm.my

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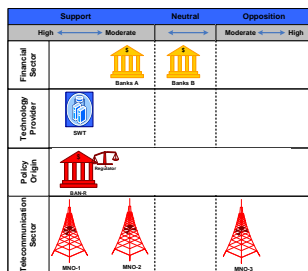
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Graphical abstract



Abstract

Mobile money is the use of mobile phone to access financial services by unbanked users who were not previously connected to formal financial system. Providing mobile money service requires collaboration between different stakeholders from different sectors: financial, telecommunication, regulatory bodies and retail agents. The aim of this study is to understand the different mobile money stakeholders' interests in participating in mobile money ecosystem, their position from collaborative mobile money service provision policy, the different resources that they are willing to participate with and the possible collaboration alliances that they can formulate. Qualitative semi-structured face-to-face interviews were conducted to collect data from different stakeholders in different sectors in Sudan. The data was analyzed using stakeholders analysis approach and results of the analysis were presented using different diagrams that contributes toward better understanding to the mobile money ecosystem in Sudan.

Keywords: Stakeholder analysis; mobile money; collaboration; Sudan

Abstrak

Wang mobil merupakan penggunaan telefon mudah alih untuk mencapai perkhidmatan kewangan bagi pengguna tanpa-bank yang tidak berurusan dengan mana-mana sistem bank secara formal. Penyediaan perkhidmatan wang mobil memerlukan kerjasama daripada pelbagai pihak berkepentingan dari sektor kewangan, telekomunikasi, badan kawal selia dan agen runcit. Tujuan kajian ini adalah untuk memahami minat dan penglibatan pelbagai pihak yang berkepentingan dalam ekosistem wang mobil, sumber yang mereka ingin sertai dan kemungkinan kolaborasi yang boleh dihasilkan. Temu bual kualitatif separa struktur secara bersemuka telah dikendalikan untuk mengumpul data daripada pelbagai pihak berkepentingan di Sudan. Data kemudiannya dianalisis menggunakan pendekatan Analisis Pihak Berkepentingan dan hasilnya dipersembahkan dengan pelbagai gambar rajah yang berupaya untuk meningkatkan lagi kefahaman tentang ekosistem wang mobil di Sudan.

Kata kunci: Analisis pihak berkepentingan; wang mobil; kolaborasi; Sudan

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1.0 INTRODUCTION

Mobile money is the use of mobile phone to access financial services by unbanked users who were not previously connected to formal financial services [1]. In the recent years, many mobile money deployments are initiated in different developing countries because mobile phones are highly penetrated between unbanked users unlike any other alternative ICT tools. Current mobile money deployments are led by either a mobile network operator (MNO), bank or third party. In some cases collaboration between bank and MNO is introduced.

In this paper, mobile money is as defined [2] "money that can be accessed and used via mobile phones" and mobile money ecosystem as "the networks of organizations and individuals that must be in place to mobile money services to take root, proliferate and go to scale." Building mobile money ecosystems must be a national wide process that enables the inclusive finance to provide financial services for the unbanked at all

level of the financial system (micro, meso and macro level) [3]. The unbanked population can improve their lives by connecting to financial services. This will also help them to prevent from economic tension as they will be able to increase their income, saving and have some form of micro-insurance. The provision of mobile money platforms enables new innovative business models and business processes that define new actors and roles in the new inclusive finance era [4]. These new mobile money platforms or ecosystems can be designed in a way that guarantees benefits to its customers as well as a win-win outcome to the participating stakeholders.

In 2011, the Sudanese government represented by the central bank of Sudan (CBOS) declared its new vision of developing a national wide mobile money ecosystem where different stakeholders like banks, mobile network operators (MNOs), microfinance institutions (MFIs) and other government agencies can participate in. The new suggested ecosystem should provide different roles for each sector to

guarantee the support for the scope and scale of the services as well as limiting the competition drawbacks and helping in delivering more financial service with good quality to larger number of users as previously supported by different authors [5-7].

The objectives of this study are: 1) to understand the current situation of mobile money in Sudan and to identify the current and possible stakeholders who can participate in a collaborative mobile money service provision. 2) To understand the different stakeholders characteristics regarding collaborative mobile money service provision policy.

In this paper, a case study on Sudanese mobile money was presented and an empirical data was collected to assist in understanding the current and future mobile money stakeholders and their influence on implementing a collaborative interoperable mobile money ecosystem. Stakeholder analysis approach was used in this paper to systematically gather and analyze qualitative data from interviewing mobile money key stakeholders so as to determine their positions, interests and possible alliances when developing collaborative mobile money. The main contribution of this paper is to provide comprehensive understanding and analysis for mobile money ecosystem in Sudan.

This paper is organized as follows: in section 2, a brief summary of the current Sudanese mobile money situation and highlights for the future needs are introduced. Section 3 provides a detailed use of the stakeholder analysis approach and its application to the case study data collection and analysis. Section 4 presents the findings of the analysis. Finally, section 5 outlines conclusions and directions for future work.

■2.0 CURRENT SITUATION IN SUDAN

Current Mobile money practices in Sudan are led by mobile network operators (MNOs) but for limited range of services like (prepaid and postpaid reloads). MNOs use a franchising business model that involves licensing of trademarks and methods of doing business with small number of direct agents for cash in. Their services are used mainly for remittances. MNOs customers are using the current available services from their operators. MNOs reported that the number of transactions done per month is huge if 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, thus leading to the need of sending regular remittances to them.

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 is considered very high. Furthermore, the cash out agents are informal agents where no legal regulations are used to protect the customers. In the current situation, the methods of cash out are not yet standardized. Another issue for the customer is the absence of interoperability between MNOs, so transfers must be done within the same network.

The current banking sector in Sudan is focusing on additive mobile banking models [8] 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 as compared to the large customer base of the MNOs. The distribution of bank branches focuses in the urban as opposed to the rural area. In addition, the requirements for NYC (know your customer) make it difficult to attract the unbanked. The banks were also

not interested in providing service to customers with low volume and frequent transactions as it will have high transaction processing fees. Banks are considering to join the new ecosystem for new customer acquisition, however they will have to compete with the dominance of the MNOs who have a strong base of existing customers, distribution networks and experience in service provision.

Current Microfinance and other financial institutions are representing a small sector that has no assets to compete with mobile money service providers. However, those institutions may be able to participate in the future by using the planned ecosystem to improve their services. Moreover, they will be able to obtain new business opportunities as cash in /cash out agents.

The Central Bank of Sudan (CBOS) is responsible of creating and monitoring the regulations and standards regarding financial transaction in Sudan. In 2010, in collaboration with the Sudanese National Electricity Corporation (NEC), some MNOs started a new business of offering electricity by using customer's mobile phone. This collaboration raised a serious issue of money creation. CBOS started to realize the importance of a fast solution for this problem. In May 2011, CBOS starts a project for Sudanese unified mobile money platform. This project is considered as a new era of banking in Sudan. The new project aims to provide a mobile money ecosystem that is interoperable. Possible stakeholders in the project are banks, MNOs, MFIs and any other institutes that are willing to enter the market for mobile money services.

Currently, the government's interest in providing a collaborative interoperable mobile money service are represented by the Central bank of Sudan (CBOS). The suggested executive of the new mobile money platform is national software provider called Electronic Banking Services (EBS) which is the current switch operator for the banks.

■3.0 METHOD

3.1 Data Collection

As previously mentioned in section 1, the objectives of this research are to understand the current situation of mobile money in Sudan and to understand more about the involved stakeholders. A qualitative case study approach [9] was used for data collection. Qualitative case study was chosen because the achievements of the research objectives need detailed information from different sources. Also, it is important to explore the context from different points of view to create a complete understanding of the situation.

At the beginning of the data collection process, two preliminary unstructured face-to-face interviews were conducted with the head of the Sudanese national mobile money steering committee. The goal of the interviews was to gain insights on the current situation of mobile banking and the future national mobile money project.

After understanding the situation and preparation of initial list of involved stakeholders from the literature, a qualitative data was collected through semi-structured face-to-face interviews with individual stakeholders. The secondary data was collected from reviews of internal reports as well as official document and materials provided by some interviewees. The semi-structured face-to-face interview was chosen as the method of collection of data because the researcher was concerned with the validation of the previously identified findings from the literature and preliminary interviews as well as to gain a better understanding on specific issues.

Interviewees were selected based on their positions and expertise in different fields and sectors that represent the supply side stakeholders mainly: the financial service provision, telecommunication, financial services regulators bodies, payment service provider. A total of 13 interviews were conducted in 2 months period.

In this paper, the initial list of stakeholders involved in mobile money service was identified based on the literature review on mobile money in developing countries and governmental reports regarding mobile money in Sudan. The initial stakeholder list consists of the following actors: supply side actors and consumer actors. The supply side consists of: Mobile network operators (MNOs), banks and other financial institutions, regulators, payment service provider (like transaction's switch operators), cash in and cash out agents and technology solutions providers. The consumer side involves the end customers who will use the mobile phone to do financial services and the merchants (like supermarkets, pharmacies and gas stations) who will need to deal with mobile money. Table 1 provides information of stakeholders in the supply side as well as the reasons as to why they were included or not in the analysis

Table 1 Mobile money stakeholders list

Stakeholder	No. of Inter-views	Reason of include/exclude
Banks	2	Included- Basic financial license holder
Banking Regulator	3	Included- Initiator of the policy
Microfinance Institutions	-	Excluded- Small sector in Sudan with almost no resource to participate
Auditing Agencies	-	Excluded- Just monitoring role
Mobile Networks Operators	4	Included- Basic channel to the customers handsets
Telecom Regulator	-	Included- Using secondary data
Switching Services	4	Included- The facilitator of the collaboration process
Handset Manufacturers	-	Exclude- no direct effect on collaboration process
Total	13	

3.2 Stakeholder Analysis

To achieve the first objective of this research, which is to gain a better understanding of the current situation of mobile money in Sudan, Checkland's rich picture approach was used [10]. Mobile money situation is complex and needed to be understood from different perspectives. Rich picture provides a starting point to deal with complex situations. It also helps in drawing a rich representation about the problem in hand. Thus, our pre-analysis were done to understand the overall situation of mobile money ecosystem in Sudan by drawing the rich picture as shown in Figure 1.

Stakeholder analysis approach was used to achieve the second objective of this research on learning more about the involved stakeholders in the mobile money ecosystem. "Stakeholder analysis is an approach, tool or set of tools for generating knowledge about actors and to understand their behavior, intentions, interrelation and interests. Also, it is used to assess the influence and resources that they bring to bear on decision making or implementation process" [11]. Thus, it

perfectly fits the need for providing comprehensive understanding of the involved stakeholders.

The policy in question is "To provide a collaborative and resource sharing based platform for mobile money to enable service interoperability and to provide multiple financial products (wider scope) and larger customer base (scale)". In this paper, the stakeholder analysis was used in determining the key stakeholders as well as their interests, positions and knowledge about the policy. It was also used to explore the possible alliances that can be formed and the influence of the stakeholder's resources and power.

The stakeholder guidelines introduced in [12, 13] is used to systematically analyze the service's supply side stakeholders. Figure 2 summarized the stakeholder analysis major steps and its function as the research method. Table 2 provides details of the characteristics used in the analysis and how to fill the stakeholder table. It was also used during the adaptation of the tools (step 4 in Figure 2) to ensure that each interview question is linked to the correct characteristic by using the column "Info Transfer Reference".

4.0 RESULTS AND DISCUSSION

4.1 Analysis and Results

At the beginning of the study, two preliminary unstructured face-to-face interviews were conducted with the head of the Sudanese national mobile money steering committee in order to understand the current situation of mobile money practices and the future national mobile money project. A pre-analysis were done for these interviews by using rich picture analysis [10] to understand the bigger picture of the situation. The rich picture is in Figure 1.

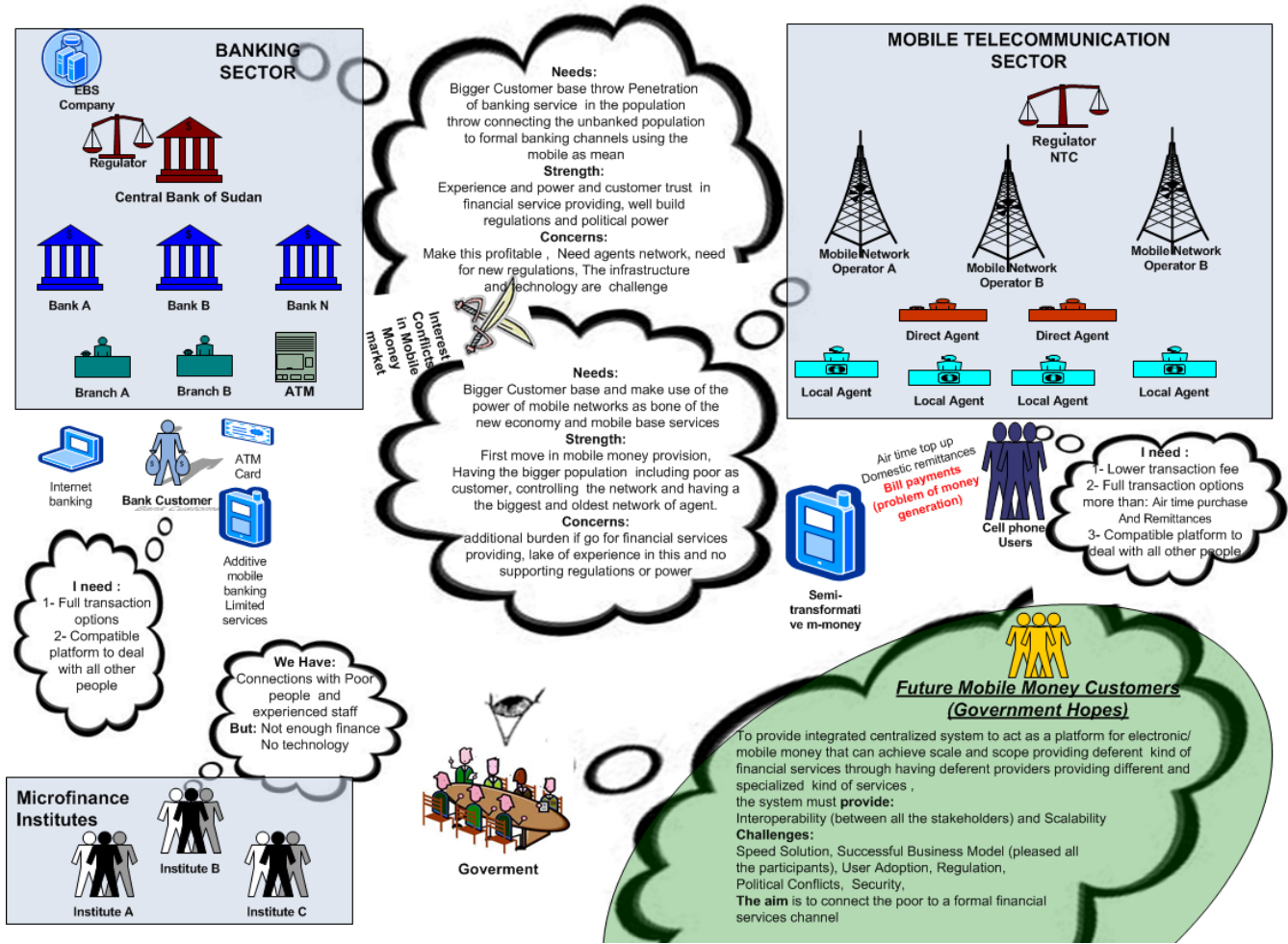


Figure 1 Current mobile money situation and future needs

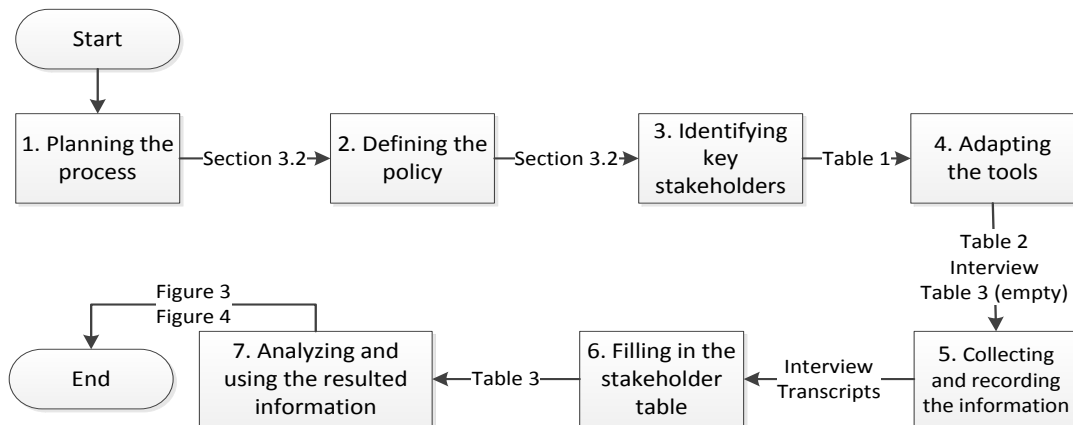


Figure 2 The stakeholder analysis as research method

Table 2 Mobile money stakeholders' characteristic list and information transfer reference

Code	Characteristic	Values	Description	Info. Transfer Reference
A	Category	Text	Four main categories: banks regulator (BAN-R), banks (BANK), mobile network operators (MNO) central switch operator (SWT).	-
B	I.D. Number	Text	The distinct number given to each stakeholder on the records using A.	-
C	Internal/ External	I/E	Is the stakeholder works within the organization that is promoting or implementing the policy (I) or not (E)	-
D	Knowledge of Policy	1-3	The level of accurate knowledge the stakeholder has regarding the policy of analysis. (3 = a lot; 2 = some; 1 = none)	#1
E	Position from the issue	S, MS, N,MO or O	E1- Self: The stakeholder's status as a supporter or opponent of the policy Supports / Moderate Supporters /Neutral /Opposes/ Moderate Opponents	#1, #6
			E2- Others : The classification by others	#3, #4, #5
			E3-Final : Analysis of E1+E2 and strengthen by F	-
F	Interest	Text	The advantages and disadvantages that implementation of the policy may bring to the stakeholder	#1, #2 #5, #6
G	Alliances	Stakeholders ID	Alliances are formed when two or more organizations collaborate to meet the same objective, in this case to support or oppose the policy in question	#3, #4 #5, #6, #7, #8
H	Resources	1,2,3	H1: the quantity of resources that a stakeholder has within his/her organization : 3: many, 2: some, 1: few	#3, #5, #7
		1,2,3	H2: the ability to mobilize those resources. 3 = Can decide 2 = Part , 1 = Cannot	#3,#5, #6, #7, #8
I	Power	1,2,3	Combined H1and H2, must include average of H1,H2 and the result indicates: 3: high power, 2: medium power and 1: little power	-
J	Leadership	Yes/No	The willingness to initiate, convoke, or lead an action for or against the policy	#1,#6

4.1.1 Filling and Analyzing the Stakeholder Table

The interviews were transcribed after the completion of data collection. The stakeholder's characteristics that were included in the analysis were identified and described in Table 2 above. Then, the data collected from the interviews were quantified into stakeholder's characteristic and were used to fill the stakeholder table (Table 3). For more details on how to fill the stakeholder table see [12]. Table 3 represents the first stage of the stakeholder analysis.

The stakeholders in the table were classified into four main categories: banks regulator (BAN-R), banks with two subcategories (BANK-A and BANK-B), mobile network operators with three subcategories (MNO-1, MNO-2 and MNO-3) and central switch operator (SWT). The subcategories for the bank and MNO stakeholder were used to represent the different point of views of different organizations within the same sector. Some of the characteristics with the same value within the subcategories were merged together in one cell.

An initial analysis to the data was done by completing the stakeholder table. In the next sections, a detailed analysis and a summary of the findings will be presented by focusing on specific characteristics of the stakeholders table. More analysis must be conducted to identify some points of the suggested collaborated service provision policy of mobile money in Sudan. Those points are: 1) the most important stakeholder in terms of power and leadership 2) the stakeholders' position

based on the policy 3) an interest analysis to know about the advantages and disadvantages of the implementation of the policy for each stakeholder and 4) an alliance's analysis to determine the stakeholders that may form alliances together. In the following subsections, the above mentioned analysis will be done and its results will be represented by using figures and tables. Finally, a discussion of the results and its implications will be explored.

4.1.2 Power and Leadership Analysis

To conduct the power and leadership analysis, the power and leadership columns from the stakeholder table were used. The stakeholders were grouped into three main groups:

- Group1: represents stakeholders with high power (level 3) and leadership(Y).
- Group2: represents stakeholders with medium power (level 2) and leadership(Y).
- Group3: represents stakeholders with high to medium power (level 3or 2) and no leadership (N).

Figure 3 shows the resulting stakeholder groups taking into account the non-included stakeholder in the stakeholder table as well as other stakeholders.

Table 3 Stakeholder table

A	B	C	D	E				F	G	H		I	J
				Position						Resources	Power		
Category	I.D. #	Internal/ External	Knowledge Level	S, MS, N, MO, O	S, MS, N, MO, O	I.D. #	S, MS, N, MO, O	Advantages / disadvantages	Organizations	1 Quantity 3,2,1	2 Ability to Mobilize 3,2,1	Resource Average 3,2,1	Yes/ No
BAN-R	BAN-R	I	3	S	S	ALL	S	<ul style="list-style-type: none"> - Connect the unbanked to the financial system - Enable inclusive finance - Minimize cash dealing - Provide scope and scale for financial system - resistance from powerful stakeholders - MNOs may overcome the traditional banks 	SWT BANK MNO-A	3	3	3	Yes
BANK	Bank-A	E	2	S	N	BAN-R SWT	MS	<ul style="list-style-type: none"> - Maximize the cash block - Bigger customer base - New business opportunities - Overhead of managing the transactions - Unrealistic expectations of collaboration between the other stakeholders 	SWT BAN-R MNO-A	1	2	2	No
	Bank-B	E	1	MO	N	BAN-R SWT	N	<ul style="list-style-type: none"> - Overhead of managing the transactions - Unrealistic expectations of collaboration between the other stakeholders 	MNO-C	1	2	2	No
MNO	MNO-1	E	3	S	MS MS	BAN-R SWT	S	<ul style="list-style-type: none"> - Customer retention - New business opportunities - better utilization of resources - Getting a formal financial licence - Ready to start immediately - no overhead of financial management - security issues - No grantee for performance KPIs - trust issues (in regulator) - customer privacy issues (central monitor) - Customer migration - need for independent switch operator 	BAN-R SWT BANK MNO-B	3	3	3	Yes
	MNO-2	E	3	MS	MO MS	BAN-R SWT	MS	<ul style="list-style-type: none"> - Ready to start immediately - no overhead of financial management - security issues - No grantee for performance KPIs - trust issues (in regulator) - customer privacy issues (central monitor) - Customer migration - need for independent switch operator 	MNO BANK	3	3	3	Yes
	MNO-3	E	2	MO	O O	BAN-R SWT	MO	<ul style="list-style-type: none"> - customer privacy issues (central monitor) - Customer migration - need for independent switch operator 	BANK-B	3	3	3	Yes
SWT	SWT	I	3	S	S	ALL	S	<ul style="list-style-type: none"> - New business opportunities - other collaborated stakeholders may not grantees performance KPIs - interoperability issues 	BAN-R BANK MNO-A	1	3	2	Yes

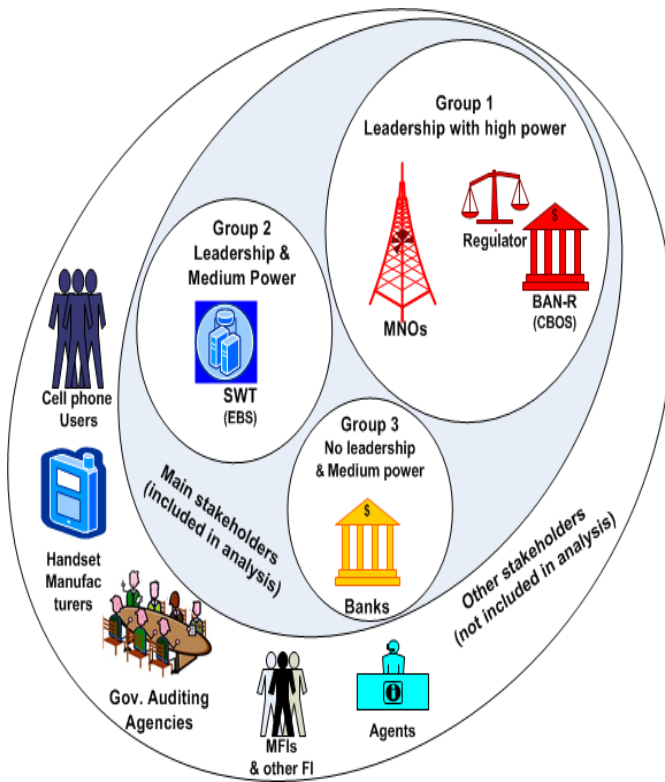


Figure 3 Results of power/ leadership analysis

4.1.3 Stakeholders' Position and Alliances Analysis

A position map was created in order to analyze the position with regards to other characteristics like: key alliances, power and leadership (see Figure 4). The position map represents an effective way to place different stakeholders in a matrix where stakeholder's position (supporter, neutral or opponent) is represented horizontally.

The vertical dimension of the map represents the sectors where the stakeholder came from and its relation to the policy originator. In addition, the color of each entity represents each stakeholder's power/leadership group (group1 represented in red, group 2 in blue and group 3 in yellow).

4.2 Discussion

The results explored in section 4.1 offer detailed information about the suggested collaborated service provision policy of mobile money in Sudan. Results show the important stakeholder in term of power and leadership, each stakeholder's position based on the policy, an interest analysis to know about the advantages and disadvantages of the implementation of the policy for each stakeholder and finally alliances analysis to determine the stakeholders that may form alliances. Figure 3 summarizes the results of power/leadership analysis where different stakeholders were classified according to their power and leadership values in the stakeholder table (Table 3). The resulted three different groups could be approached by the policy implementers in different ways and by different means according to their priority and level of knowledge and power.

Figure 4 summarizes the position map for the stakeholders that represent power, position and leadership values in the

stakeholder table (Table 3). The map shows the position of each stakeholder from the collaborative mobile money service provision as well as their possible alliances. The position map also shows the existence of two alliances that the stakeholders can form as supporter's alliance and the Telecom's alliance.

The supporter's alliance can consist of the supporters and moderated supporter that include: CBOS, MNO-1, MNO-2, central switch operator and Bank-B. The supporter alliance is powerful and it shows support of the policy of collaborated mobile money service provision from most of the high and medium power and leaders. This is an indication for a possible collaboration from different sectors which provides the policy implementers the confidence to start the designing phase of the service with inclusion of collaboration between different stakeholders from different sectors to provide the service.

Due to the hidden political influences, the MNOs can form a kind of alliance—Telecom's alliance which did not appear in the analysis but was obvious during the interviews where almost all of interviewees used the word "we" to refer to the telecommunication sector when they talk about their concerns regarding the policy originators. To avoid the existence of this powerful opponent's alliance, the policy originators must give priority to solve the concerns of the MNOs from joining the collaborative service provision to grantee that they will not try to impede the policy implementation.

The knowledge column in the stakeholder table (Table 3) shows low knowledge level of mobile money and collaborative service provision between the banks. The policy originators must focused on this issue by designing awareness campaigns targeting the banks so they can raise the level of knowledge and gain more support for the policy.

The interest column in the stakeholder table (Table 3) provides details about the benefits and the concerns of each stakeholder. This can help the policy originators to identify the actions to be taken in order to solve the concerns of the stakeholders which can guarantee their full collaboration. Issues like trust, the need for KPIs and the win-win collaboration outcomes can be solved by applying service science [14, 15] and service value networks [16] concepts in designing the collaborative service to address those concerns.

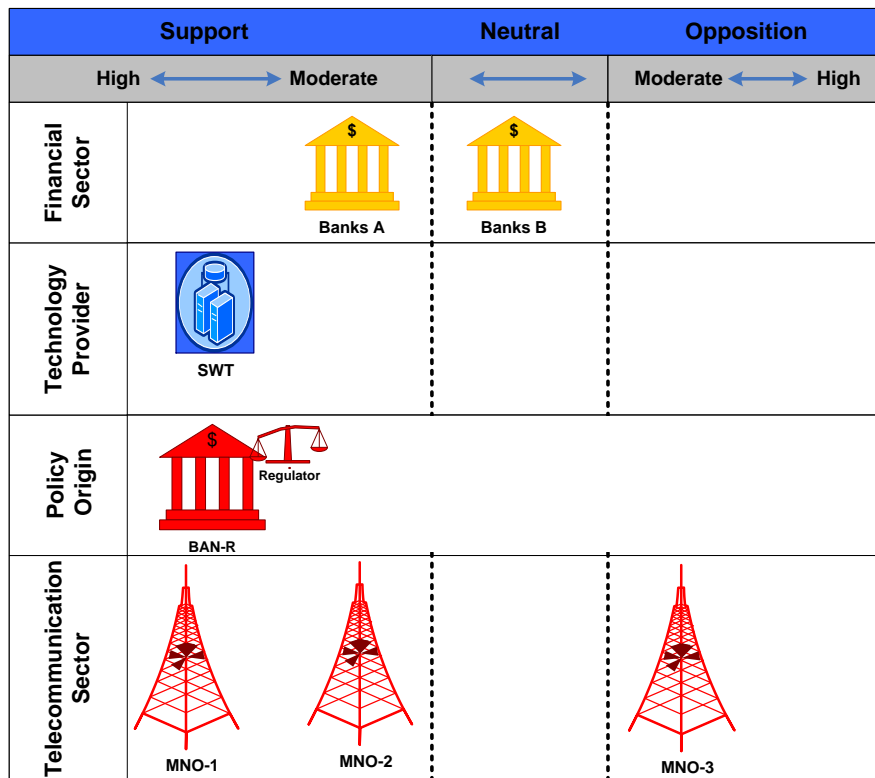


Figure 4 Position map

5.0 CONCLUSION

Many mobile money experiences exist in developing countries but most of them are single service provider model. Mobile money ecosystem requires the collaboration of different service provider to guarantee scope (more financial products) and scale (more customers). One of the challenges to provide a collaborative mobile money service is the resistance of the main stakeholders due to several reasons. Those reasons could be summarized in the desire of the dominant market players like MNO's to monopolize the mobile money market. The focus of all stakeholders is on profitability without focusing on the whole ecosystem benefits, therefore they ignore either the scope or the scale of their services. Additionally, competition within the same sector prevents stakeholders from accepting the collaboration trend. Finally, concerns about the commitment of other stakeholders in providing the expected performance in the collaboration.

The main contribution of this study is to provide an insight of the main stakeholders and their position as well as concerns to participate in providing a collaborative mobile money service. The objectives of this study are: First, to understand the current situation of mobile money in Sudan and to identify the current and possible stakeholders who can participate in a collaborative mobile money service provision. This was done by building a rich picture on the situation after interviewing stakeholders. The second objective is to understand the different stakeholder's characteristics in regards to collaborative mobile money service provision policy. The second objective was achieved by using the stakeholder analysis approach to collect and analyze data from stakeholders. Results helped in understanding the stakeholder's position, power, interests and possible alliances.

Results can be used by decision makers to fulfill the different interests of the stakeholders when defining strategies to apply the policy. Furthermore, those strategies must be executed by the order of priority given according to power and position of each stakeholder.

Future work will focus on translating the findings of this paper into action plan to help the decision makers in future implementation of the collaborative mobile money service provision policy. Also, future work will utilize the service science and value network concepts in designing business to business (B2B) collaboration that can grantee value co-creation between different stakeholders and means for governing and controlling their interactions. Finally, the value network modeling 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.

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