

Mobile Governance for Development – Strategies for Migrant Head Porters in Ghana

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ABSTRACT

A promising strategy to promote good governance is harnessing the opportunities provided by the use of mobile phones, widely accessible to most segments of the society, for delivering public information and services and for decision-making by government. This paper investigates the design and implementation of mobile governance (MGOV) strategies for development (MGOV4D). Specifically, it presents an MGOV4D strategy framework to support mobile Information and Communication Technologies (ICT) for development (MICT4D) projects in meeting their development objectives. The paper consists of four parts. First, it presents a framework for determining the governance and related MGOV requirements for MICT4D initiatives. Second, it applies the framework to determine the MGOV4D requirements for a concrete case study of migrant head porters – local micro-logistic service providers from Ghana, involving the use of mobile phones to meet the porters' livelihood needs. Third, based on the identified requirements, it presents a set of MICT4D initiatives that could be developed into MGOV4D programs to address the requirements. Fourth, it synthesizes the MGOV4D strategies that can support the inclusion objectives for the head porters and similar vulnerable groups. In the conclusions, the paper discusses how these results can support policy efforts for achieving the Millennium Development Goal 1 – Poverty Alleviation, and 3 – Gender (specifically Women Empowerment).

Categories and Subject Descriptors

Computers and Society, General

General Terms

Human Factors, Public Policy

Keywords

Mobile phones, ICT4D, e-Governance, Development, Ghana

1. INTRODUCTION

Adopted by the UN General Assembly in 2000, the Millennium Development Goals (MDG) commit both developed and developing countries to do 'all they can to eradicate poverty, promote human dignity and equality and achieve peace, democracy and environmental sustainability'. Mid-way to the

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2015 MDG target, there is a growing consensus that achieving MDG rests upon good governance and upon realizing pro-poor policies by public administrations and the civil society based upon accountability, transparency, rule of law and human rights.

In the case of Africa, many studies have shown that achieving the long-term development goals requires an enabling environment to guide productive use of resources in the society. For instance, according to [4], a key determinant of poverty is the absence of institutional arrangements to guarantee economic freedoms and to constrain opportunistic activities by civil servants and politicians. Such arrangements – making governments responsive to the needs of people, increasingly rely on ICT. ICT can be also central to good governance [3] to facilitate a dialogue between politicians and civil servants on the one hand, and the public on the other [2].

Governments worldwide are therefore seeking to harness the potential offered by ICT to implement the principles of good governance and to create new dimensions of economic and social progress. Indeed, various studies [6] have shown a positive correlation between the countries' internet penetration and their Gross Domestic Product. An immediate challenge is bridging the digital divide through: 1) information infrastructure, 2) capacity building, and 3) adequate financial resources to develop 1 and 2. Lacking the information infrastructure, the last mile connection problem [7] limits Internet provision [8] and makes ICT applications in governance processes (EGOV) difficult. In this regards, mobile phones play a central role in establishing a global Information Society [9]. However, as confirmed by the World Summit of the Information Society [10] a key challenge is making sure that ICT facilitate the achievement of MDG, a real measure of socio-economic progress, and not just increase ICT statistics.

This paper examines strategies for the use of mobile phones in the development context. Specifically, it examines how mobile phones could provide an effective channel to serve vulnerable groups in the society, to give them a voice in a dialogue with politicians and civil servants. It offers concrete MGOV4D strategies that could impact on the livelihood of the vulnerable groups in developing countries, validated by the case of Ghanaian head-porters. The paper makes two main contributions: 1) it provides a conceptual framework that links MGOV strategies to development, particularly to sustainable livelihoods; and 2) it formulates MGOV4D strategies to address the livelihood needs of the vulnerable groups which rely on mobile phones as the only e-channel to interact with their representatives and governments.

The rest of this paper is organized as follows. Section 2 presents the background to understanding governance, development and mobile governance for development, followed by the MGOV4D conceptual framework in Section 3, and the methodology adopted in this research in Section 4. Section 5 presents a case study on the

use of mobile phones by migrant head porters’ in Ghana and carries out the analysis of MGOV4D requirements enabled by this case study. Section 6 provides examples of MICT4D initiatives that could be developed to address the MGOV4D requirements identified in Section 5. Section 7 discusses a possible MGOV4D strategy framework to advance MDG. Finally, Section 8 presents some conclusions and plans for future work.

2. BACKGROUND

This section reviews the literature and concepts required in the rest of the paper, focusing on good governance (Section 2.1), governance for development (Section 2.2) and mobile governance for development (Section 2.3).

2.1. Good Governance

Characterized by accountability, transparency and promotion of growth, pro-poor growth in particular, good governance enables progress in human development. In addition to economic growth, it aims at minimizing the vulnerability of the poor through access to information and participation in decision processes of the state.

Good governance is possible when the democratic values and norms are engrained in the society and its institutions along with procedural requirements for free and fair elections [12]. As such, it provides the ‘enabling environment’ for achieving MDG and other development objectives.

A core element of good governance is participatory governance. Depending on the initial endowments and the quality of participating institutions, the actual practice of participatory governance varies enormously in its form and behavior. In terms of scope, participation can encompass: 1) ascertaining people preferences over alternative social outcomes and processes of achieving those outcomes; 2) formulating policies, rules and institutions based on the established preferences; 3) implementing the proposed policies, rules and institutions; and 4) monitoring, evaluating and ensuring accountability of policy processes [13].

2.2. Governance and Development

Three predominant development models described in the literature are [14][15]: 1) development as modernization or economic growth, 2) development as exploitation of poorer countries by the richer or more developed countries through colonization or dependency; and 3) development as expansion of the freedoms that people enjoy to lead their lives.

The last model elaborates development as “expansion of assets and capabilities of the poor to participate in, negotiate with, influence, control, and hold accountable the institutions that affect their lives” [13] where the assets include material, financial, natural, geographical, human, psychological, informational, cultural, and social resources [14]. In our view, this model is most relevant in understanding development from the perspective of the poor and vulnerable segments of the society. The exposition of the ‘development as freedom’ idea clearly recognizes the intrinsic value of participation in the development process [16][17]. Specifically, it highlights the importance of participation in reaching outcomes such as freedom from hunger, disease, illiteracy and others [18]. However, people attach value not just to the final outcomes but also to the process through which such outcomes are achieved. Freedom to participate is a constituent of development and not just a means of achieving it.

In further investigating the connection between participation and development, participation has been explicitly linked to poverty [17] and conceptualized as capability deprivation. For instance, social exclusion may prevent individuals from taking part in the life of a community or prevent them from participating in social affairs and attaining power to influence decisions that affect their lives [19]. In the inclusion and exclusion context, participation is a multi-dimensional concept, spanning poverty, access to education and job markets, support networks, and negotiation of social provisions. Participatory governance aims at involving people in the decision-making processes and in the implementation of projects of which they are the intended beneficiaries.

[20] explores relationship between governance and development in order to attain MDG, where governance aims at enabling the generation of income through pro-poor growth, accountability and transparency, and the delivery of services through empowerment, participation and access. Seven dimensions of governance related to MDG are [20]:

1. framework for pro-poor policies,
2. public administration and civil services,
3. decentralization and delivery of services,
4. accountability and transparency,
5. rule of law,
6. human rights and
7. the role of civil society.

While concrete evidence exists that good governance leads to development, development and growth may not automatically lead to improved governance. As depicted in Figure 1, explicit efforts are needed to consolidate development gains to improve governance [20].

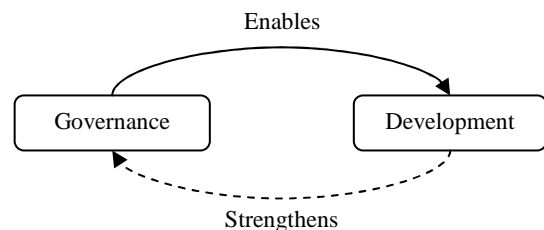


Figure 1. Duality of governance and development

2.3. Mobile Governance for Development

Electronic Governance (EGOV) – the ICT-enabled model of governance is increasingly adopted by governments in developing and developed countries alike. However, EGOV construction is a major challenge for developing countries, as receiving public services online requires access to Internet and good network connectivity, with the internet infrastructure construction costs beyond financial capacity of many countries. In these resource-constrained environments, given that mobile connectivity is cheaper and thus also available to disadvantaged groups, mobile telephony becomes a viable alternative to broadband connectivity.

The adoption by governments of mobile technologies and the pursuit of mobile services is driven by a number of factors. One factor is availability – by the end of 2011, about 80% of the whole human population is predicted to become mobile phone subscribers [12], 25% of them having access to 3G services.

Globally, the number of mobile phones has exceeded the number of fixed and wired phones. This is also the case in many nations, including 49 middle-income and 36 low-income countries [22]. Other factors include: support for location-aware services required for emergency and health services, access to information anywhere and anytime, and increased efficiency and effectiveness of decision making due to better access to information [13].

m-Governance (MGOV) involves the utilization of all kinds of mobile devices, services and applications to deliver benefits to citizens, businesses, governments and other parties involved in the EGOV processes [21]. MGOV is particularly well-suited for the developing world where Internet access rates are low, against rapid growth in mobile phone usage in both urban and rural areas. Given the accessibility of mobile phones to the poor, opportunities for pro-poor MGOV are compelling.

However, awareness about MGOV and availability of mobile services do not guarantee the fulfillment of specific livelihood needs of the poor, in line with the argument about EGOV and social goals - “e-governance negotiates poorly with social goals in particular forms of regimes (e.g. market) with respect to more regulated regimes (e.g. social democracies)” [23]. As many developing countries are market economies, it is plausible to think that social inequality could persist or even exacerbate in the presence of EGOV, or even MGOV, if not carefully conceived and implemented to avoid this danger.

Therefore, in our view, MGOV in a development context (MGOV4D) should not only provision mobile technology-based information and services to vulnerable groups, like typical MICT4D initiatives, but support governance mechanisms like pro-poor policies, decentralization, accountability and transparency, towards achieving the expected development and social inclusion outcomes. Thus our definition of MGOV4D is as below.

Definition 1: Mobile Governance for Development (MGOV4D)

MGOV4D entails the use of mobile technologies by government through: 1) the delivery of necessary information and services to citizens, particularly to the vulnerable segment of the society; and 2) the implementation of the necessary governance mechanisms to support the initiatives (1) in order to achieve the desired development and social inclusion outcomes.

We shall refer to the use of mobile technology by governments for the purpose of information and service delivery as m-Government (and not m-Governance or MGOV). In addition, we shall refer to the use of mobile delivery of information and service with development objectives by government and non-government parties (such as civil society or private sector organizations) as Mobile ICT for Development or MICT4D.

Definition 2: Mobile ICT for Development (MICT4D)

MICT4D entails the use of mobile technologies by governments, civil society, public sector organizations and other non-state actors to deliver necessary information and services to citizens, particularly to the vulnerable segment of the society, to achieve the desired development and social inclusion outcomes.

Thus MGOV4D initiatives are MICT4D initiatives that are initiated by government and directly support the necessary governance mechanism to ensure development outcomes.

3. CONCEPTUAL FRAMEWORK

This section presents a conceptualization of the MGOV4D definition put forward in Section 2.3.

Following Section 2, the conceptualization is based on the following propositions: P1) the adoption of mobile technology for service delivery and participation of citizens and other actors in policy development is insufficient for generating the expected development outcomes; P2) to meet development and social inclusion outcomes such as the MDG, the necessary governance mechanisms should be implemented; and P3) mobile technology is critical for the implementation of these governance mechanisms given that mobile phones often constitute the only e-channel accessible to the vulnerable individuals or groups.

Guided by these propositions, the conceptual framework serves three purposes: 1) analyze MICT4D initiatives to determine the required governance mechanisms and associated MGOV4D strategies in Section 5; 2) determine the MGOV4D requirements appropriate for the vulnerable group under study in Section 6; and 3) provide an underpinning framework for MGOV4D strategy recommendations offered in Section 8.

Depicted in Figure 2, the conceptual model comprises:

1. MICT4D Initiatives – Any MGOV4D initiative including MGOV with development or social inclusion objectives.
2. MGOV4D Initiatives – MICT4D initiatives that are initiated by governments and explicitly support one or more governance mechanisms.
3. Citizen Assets – The resources required by citizens and vulnerable groups. Mobile technology initiatives generally seek to expand these resources and associated choices (Section 2.2). Example assets are shown in Table 1 [14].
4. Governance Mechanisms – The activities that implement good governance, aimed at specific development objectives. Such mechanism may support mobile technology of MGOV initiatives towards achieving development outcomes. Example mechanisms are presented in Table 1 [21].
5. Development and Social Inclusion Outcomes – Concrete development goals such as the MDG [21][27], listed in Table 1, or social inclusion goals of EU or Australia [19].

Based on the framework, identifying the required governance mechanisms is critical for any MGOV4D initiative.

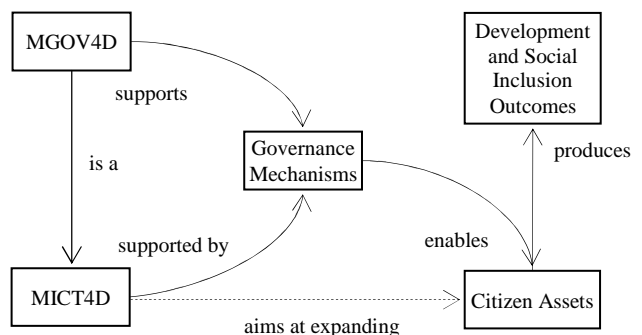


Figure 2. MGOV4D Conceptual Framework

Considering the model in Figure 2, seven governance mechanisms have been identified in [17] as critical for achieving development objectives. These are listed in the “Governance Mechanism” column of Table 1. In terms of citizen assets, [11] identified 10

types of resources required by citizens. These are listed under the “Citizen Assets” column of Table 1. Lastly, the eight MDG are taken as development and social inclusion outcomes. They are listed under the corresponding column of Table 1.

Table 1. Elements of the MGOV4D Conceptual Framework

Governance Mechanisms	Citizen Assets	Development and Social Inclusion (DSI) Outcomes
<ul style="list-style-type: none"> ○ Pro-poor policies ○ Public administration and civil services ○ Decentralization and service delivery ○ Accountability and transparency ○ Rule of law ○ Human right ○ Civil society 	<ul style="list-style-type: none"> ○ Educational ○ Psychological ○ Information ○ Financial ○ Cultural ○ Social ○ Natural ○ Material ○ Geographic ○ Health 	<ul style="list-style-type: none"> ○ Poverty ○ Education ○ Gender balance ○ Reducing child mortality ○ Maternal health ○ Reducing HIV/AIDS ○ Environmental sustainability ○ Partnership

This work focuses on how the development needs of a segment of the society involving rural and vulnerable women – head porters in sub-Saharan Africa, can be supported through MGOV. Women are increasingly considered an important target in development programs due to the gender imbalance in many aspects of human development and social inclusion [23].

4. METHODOLOGY

This section describes the methodology adopted to guide this research. The objective is to determine possible EGOV strategies to support vulnerable groups such as the head porters in Ghana.

This research seeks to answer the following questions:

- R1. What are the most critical livelihood resource needs for the head porters and similar vulnerable groups?
- R2. What governance structures and actions are most critical in addressing these needs? What role can mobile phones play?
- R3. What governance structures and actions are most critical for the relevant MICT4D initiatives to address (R2)?
- R4. What type of MGOV4D framework could be recommended for governments to support such vulnerable groups?

The steps employed to answer these questions are as follows:

- 1) *Determining MGOV4D requirements for Migrant Head Porters* – The migrant head porter community was selected for two major reasons: 1) this community provides a critical micro-logistic service for local population – transportation; and 2) to the best of our knowledge, very few studies of such communities have been carried out in Ghana or elsewhere [28] and the studies how such communities benefit from the use of mobile phones do not exist. To obtain the required information, an ethnographic approach was applied. One of the authors interviewed several members of the community over a period of time, including in-depth discussions with one member on how the use of mobile phones has impacted her livelihood and the challenges she faces in interactions with the government. Following this, our conceptual

framework was applied to determine: 1) possible MICT4D initiatives and 2) related governance factors; that could significantly impact the livelihood of this vulnerable group. From these two information items, MGOV4D requirements are defined. This step is carried in Section 5.

- 2) *Identifying relevant MICT4D initiatives and governance requirements* – With MGOV4D requirements identified, this step reviews relevant cases of the MICT4D initiatives described in the literature and on the websites of government agencies and international development organizations such as the United Nations and the World Bank. Next, the conceptual framework is applied to determine critical governance factors as a basis for evolving possible MGOV4D initiatives. This step is carried out in Section 6.
- 3) *Synthesizing MGOV4D strategies to support head porters* – Based on the MGOV4D initiatives determined in the previous step, this step synthesizes possible MGOV4D strategies through conservative generalization. This is presented through discussion in Section 7.
- 4) *Validation* – Two forms of validations were carried out. First, data obtained from our case study subject was compared (i.e. through triangulation) with findings in [28] considering the difference in period of both researches. Second, the propositions in Section 3 were validated. To this end, we checked if there are facts arising from the case study and reviewed cases that are inconsistent with the propositions. This step is carried out in Section 7.

5. CASE STUDY

This section is structured into four parts. Section 5.1 describes the policy environment including ICT, development and governance. Section 5.2 presents some background about head porters in general. Section 5.3 presents the interviews with members of the head porter community and a detailed discussion with one of them. Analysis of the information needs of the head porters and related MGOV4D requirements are provided in Section 5.4.

5.1. Policy Context

Ghana is a peaceful and stable democracy, making good progress toward its goal of becoming a middle-income country by 2020. With economic growth rates topping 6% over recent years, Ghana is viewed as an emerging African economic success story. It has had five consecutive democratic elections and two peaceful transitions of power since 1992, leading other African nations to look to Ghana for assistance with their own elections [30].

According to the Canadian International Development Agency (CIDA), since 1990 the Ghanaian government has been working closely with the donor community and has nearly halved the number of citizens living in extreme poverty. It currently ranks 152 out of 182 countries on the United Nations Development Programme's 2009 human development index [30].

Following the completion of the Growth and Poverty Reduction Strategy Phase II 2006-2009, the next phase - GPRS II, was directed primarily towards the attainment of the anti-poverty objectives of the UN's Millennium Development Goals (MDG). Ghana subscribed to the MDG as a member of the community of nations. But under the Highly Indebted Poor Countries (HIPC) pact, these MDG were transformed into the mandatory framework of domestic economic policy in return for the grant of debt relief [31]. The policy is to use ICT in government as a pivotal tool to

improve accountability and transparency in government, develop human resource potential, and strengthen national unity.

Ghana's ICT vision is expressed in the 2003 policy Ghana ICT for Accelerated Development (ICT4AD). Intended as "a policy statement for the realization of the vision to transform Ghana into an information-rich knowledge-based society and economy through the development, deployment and exploitation of ICT within the economy and society", the policy aims at addressing various developmental challenges facing the country as a basis for achieving major policy goals and objectives [32]. Based on a statement by the Minister of Communications on 6 April 2010, Ghana is challenged to "build a people-centered, inclusive and development-oriented Information Society, where everyone can create, access, utilize and share information and knowledge, enabling individuals, communities and peoples to achieve their full potential in promoting their sustainable development and improving their quality of life" [33].

5.2. Ghanaian Migrant Head Porters

Head portage is a major form of transportation of goods in Ghana. All over the country, people carry their wares from farms to their houses on their heads. While both men and women do carry goods in this way, men increasingly use bicycles, carts and other technological aids.

However, in the business of head portage, almost entirely associated with young women and teenagers (called "*Kayayei*") migrating from the northern to the southern part of Ghana, there is usually no mid- to long-term plan to acquire such technological aid. A picture of a typical head porter or "*Kayayoo*" (singular form of *Kayayei*) is shown in Figure 3.



Figure 3. A Ghanaian Head Porter (Source: Ce-G, 2010)

Based on the findings from a study reported in 2003 involving 700 head porters [24], the reasons why women engage in the head portage business include: savings for future investment, saving for marriage needs, to support family and apprenticeship.

Unfortunately, this occupation is linked with independent child migration; an issue of significant and growing importance at the national level in Ghana. There is a lot of public concern and tremendous disquiet particularly about young girls working as head porters. Many of these children originate from three northern regions of the country (Northern, Upper East and Upper West), with Greater Accra and the Ashanti regions the main destinations for them [34]. This phenomenon has important implications for the development prospects of both origin and destination areas,

and of course for socio-economic advancement of the child migrants themselves. 87.3% of child migrants have little or no education [35] and only 12.7% have education beyond the primary school level [36].

Findings from [24] highlighted specific vulnerability of these young women including lack of shelters and consequently no fixed address, exposure to abuse and harassment and unfair exploitation even by women customers.

5.3. One Head Porter's Access to Mobile Phone

Against the general background in Section 5.2, we present here the information obtained from an ethnographic study investigating the impact of mobile phones on the lives of women head porters in the southern part of Ghana. One of the authors spent over a month with the community of head porters with the purpose of understanding their daily lives, their challenges and the use of mobile phones. One of the members of the community that was willing to share more information about daily life and challenges was selected as the main subject for detailed interview, discussion and interaction. We name her "Sherifat" in this paper for easy reference. She was 18 years old as at the time of the study and was also a single mother. The mobile phone she possessed was given to her a gift by one of her customers.

We summarize the goal and expectations of Sherifat as a migrant head porter, her perceptions of the benefits of mobile phones, and challenges she faced in her daily life as a head porter.

Goals and Expectations – Sherifat came to Accra because of the opportunities she had been told the capital city offers, and to lift herself from poverty. Her goal is to save money for setting up a business in her home town.

Use of Mobile Phone – Sherifat uses her mobile phone essentially to receive requests for services from her customers. She also uses the phone to communicate with other head porters. Initially, she had to go to the market daily to compete with other porters and move from market to market in the search of jobs. Now, her movement is guided by the requests received through the phone.

Benefits – The use of a mobile phone has improved Sherifat's access to and use of information, thereby reducing her search, improving communication and coordination with her customers, and increasing efficiency. The most important capability created for Sherifat by the ownership of the phone is her ability to facilitate communication with social networks, thereby reducing her exposure to risk. Gaining information about needs and attitudes of her customers led to higher empowerment since it increased her choices. Specific benefits created by the access to a mobile phone include: 1) opportunity to access resources and markets; 2) empowerment by way of participating in this type of work; 3) ability to negotiate with customers; 4) influence where to stay and how to take care of her baby; 5) sharing vulnerability risks with the network of head porters formed through access to mobile phones; and 6) reacting faster to arising opportunities and maintaining contact data [22].

Needs – However, Sherifat still faces major challenges: child care facilities for her son, water and electricity which she does not have, waste removal facilities, and a washroom and shelter near the trading centre which are not within her reach. Her ability to take part in decisions through feedback about her situation is severely limited. In addition, while access to a mobile phone has improved Sherifat's livelihood, it has not given her broader

benefits of participation and inclusion. She has access and lives where she can have connectivity to the phone, but currently, will not be able to register as a voter, neither check weather reports to decide on her schedules. Porters suffer a great deal from the wet seasons and Sherifat would gain tremendously from accessibility to useful information, apart from her customer-based calls.

5.4. Head Porters' MGOV4D Requirements

Based on the Sections 5.2 and 5.3, we identify basic information and service requirements for a typical head porter amenable to MICT4D interventions:

- 1) *Micro-banking and money transfer service* – A major goal for women head porters is saving money for their future plans – setting up their own businesses, enrolling in apprenticeships, etc. Thus, services to assist these women in saving money and transferring such money from the southern part of Ghana to relatives in the villages in the north are important to this goal. Therefore, MICT4D initiatives to support savings and transfer of funds are essential. For such initiatives, the government would be expected to enable micro-banking services as part of its pro-poor policy, while telecom operators and interested banks would be expected to support the development of the mobile phone-based micro-finance products.
- 2) *Health awareness* – Given the literacy level and general vulnerability of the head porters, the provision of health-related information is critical. For instance, Sherifat requires timely information on the locations of vaccination centers, reminders of vaccination schedules, etc. for her baby. In addition, information on basic hygiene and sanitary practices particularly during diseases outbreaks, epidemics and disasters are also critical. The possibility of delivering such information over mobile phones would have significant impact on child mortality among this vulnerable class.
- 3) *Information on weather conditions and forecast* – Given that a good number of head porters have no real shelter, possibility of receiving advance warning to avoid being trapped under rain could reduce the incidence of abuse and harassment of these women, which usually happen in rainy nights. Providing weather-related information by relevant government agencies would require cooperation with telecoms operators.
- 4) *Incident reporting* – Related to abuse and harassment suffered by head porters, the possibility of a simple mobile-phone based, location-based incident reporting service would be highly desirable to assist law enforcement in apprehending offending parties. As a custodian of law and order, the government could drive such initiatives. Lacking government leadership, civil rights protection organizations could assist in provisioning such services particularly to vulnerable groups.
- 5) *Voting and participation* – With low literacy levels among head porters and basic economic and social problems they face in daily lives, voting and participation are not priority issues for these women. Therefore, through civil society participation and human rights instruments, basic awareness of the right and benefits of contributing voices in decisions which affect their lives is critical. Even when government does not provide the means or show the willingness to empower such women, the civil society could provide various channels for them to contribute and have a say in their future.

We summarize this information in Table 2. The table shows the impact areas for various initiatives and the governance mechanisms required to achieve the expected outcomes.

Table 2. Basic MGOV4D Requirements for Head Porters

No	Information Service	Outcome	Governance
1	Micro-banking and financial services	Poverty, Gender balance	Pro-poor policy, Civil Society
2	Health awareness information	Child mortality, Maternal health, HIV/AIDS	Public Administration Reform, Decentralization, Civil Society
3	Weather information service	Maternal health, HIV/AIDS	Public Administration Reform, Decentralization, Civil Society
4	Incidence reporting	Gender balance	Public Administration Reform, Civil Society, Human Rights
5	Voting and participation	Gender balance	Public Administration Reform, Civil Society, Decentralization

6. EXAMPLE MICT4D INITIATIVES

This section briefly highlights example initiatives related to the MGOV4D requirements in Table 2. These initiatives cover seven areas: health awareness, remote data collection, voting and consultation, emergency notification, election results monitoring, civil protests and money transfer. For each initiative, important governance mechanisms are specified in Table 4.

For instance, to ensure the success and sustainability of a health awareness service, governments must develop the requisite capability to make such a service available in the content and style suitable for mobile delivery, ensure availability to the vulnerable segments of the society such as head porters, either freely or at affordable cost, and ensure support from the civil society.

Table 3 maps the MGOV4SD requirements summarized in Table 2 to the MICT4D initiatives presented in Table 4.

Table 3. Applicable Initiatives for MGOV4D Requirements

No	MGOV4D Requirements (Table 2)	Applicable MICT4D Initiatives (Table 3)
1	Micro-banking and finance services	Money transfer
2	Health awareness information	Health awareness
3	Weather information service	Health awareness, Emergency notification
4	Incidence reporting	Remote data collection
5	Voting and participation	Civil protest, Election results monitoring

Table 4. MICT4D Initiative Examples and Associated Governance Mechanisms

Application	Country	Description	Partners	DSI Outcomes	Governance
Health Awareness [28]	India	Communicating information in engaging ways through games tailored for different demographic and social groups.	ZMQ Software Systems and Delhi State AIDS Control	Awareness of HIV/AIDS enhanced. Improved public awareness outcomes.	PACS, DSD, CS
	Uganda	SMS-based HIV/AIDS awareness quiz.	Celtel, AIDs Information Centre (AIC), Merck, Dutch Ministry of Foreign Affairs	About 40% increase in the number of people coming in for free HIV/AIDS testing. Strengthened partnership.	PACS, DSD, CS
Remote Data Collection [29]	Peru	CELL-PREVEN – Sending SMS messages with real-time data on symptoms experienced by clinical trial participants. Enables immediate response to adverse symptoms.	Universidad Peruana Cayetano Heredia (Peru), Imperial College (London), University of Washington (Seattle) and Peru’s Ministry of Health	Improved public awareness.	PAC, CS
Voting and Consultation [30]	La Plata, Argentina	Allows citizens of La Plata to vote for preferred public investment projects through SMS.	Local government initiative.	Voting and participatory decision-making.	PAC, DSD, AT, CS
	Estonia	M-Voting takes place during 2011 elections.	For Estonia, government through parliament has made this possible.		
Emergency Notification	Kenya Zimbabwe	Ministry of Internal Security forwards messages warning against causing public unrest.	Government initiative.	Public awareness in the time of crisis. Access to valuable information.	PAC, DSD, CS
Election Results Monitoring [31]	Ghana, Sierra Leone	SMS technology with mobile phones to transmit, collect and interpret timely information from volunteer observers at polling stations.	Centre for Democratic Development and National Democratic Institute, USA	SMS reporting contributed to general acceptance of results. Citizens’ recognition of right to information about the electoral process.	AT, HR, CS
Civil Protest	Philippines, Kuwait, Ukraine, Burma	Mobile technology for advocacy – pro-democracy protests for the right to vote.	Civil society	Social participation and advocacy. Voice and awareness campaigns.	HR, CS
Money transfer [32]	Kenya	M-PESA – Enables transfer of money from one mobile phone user to another without the need for bank accounts.	DFID, Vodafone, Faulu Kenya (Microfinance), Safaricom, etc.	As at 2009, over 7.7 million M-PESA accounts exist, with take up exceeding expectations. Impact has been in job creation, expanded local economy, and capital accumulation.	PPP, CS

Governance Mechanisms: 1) Pro-poor policy – PPP, 2) Public Administration and Civil Service – PACS, 3) Decentralization and Service Delivery – DSD, 4) Accountability and Transparency – AT, 5) Rule of Law – RoL, 6) Human Rights – HR, and 7) Civil Society – CS

It should be noted that the governance mechanisms identified in Table 4 must be considered when adapting these solutions to fulfill the requirements described in Table 2. In implementing the governance mechanisms (such as the pro-poor policy) in the context of a requirement (such as money transfer) the resulting MGOV4D strategy could specify how, for instance, low-cost mobile phones enabled for micro-financial transactions could be made available to a chosen segment of the society. Table 5 presents possible MGOV4D strategies to support the implementation of MICT4D initiatives as MGOV4D programs.

Table 5. Generic MGOV4D Strategies

No	Governance Mechanisms	Generic MGOV4D strategies
1	Pro-poor policies	Provisioning of low-cost mobile phones to the poor
2	Public administration and civil service reform	Training of civil servants on the use of mobile devices for information dissemination and capture
3	Decentralization and service delivery	Delivery of information and services over mobile phones at all levels of government, including in rural areas
4	Accountability and transparency	Delivery of government information over simple mobile phones
5	Rule of law	Supporting information and evidence provided through mobile phones
	Human rights	Reporting human right abuses through mobile phones
	Participation of civil society	Leading MICT4D initiatives, building capacities of citizens and governments

7. DISCUSSION

While papers exist on measuring the impact of ICT and mobile ICT on development [36], we are unaware of any work that investigates how good governance can mediate ICT4D initiatives undertaken by governments. The main thesis in this paper is that sustainable implementation of MICT4D initiatives requires explicit consideration of the good governance factors for achieving the anticipated development targets.

Guided by this thesis, by the analysis of our case study in Section 5 and by reviewed MICT4D initiatives in Section 6, we arrive at the following answers for the research questions:

- *Critical information services for head porters* – Our analysis in Section 5 reveals the information and services items: micro-banking and money transfer, health awareness information, weather related information, incidence reporting and voting.
- *Required governance structures and actions for MICT4D initiatives* – The top three governance mechanisms required to support MICT4D initiatives are: participation of civil society, public administration and civil service reform, and decentralization and service delivery. The participation of civil society is critical for MICT4D initiatives.

- *Supporting governance structures with mobile phones* – This included the use of mobile phones for delivering different information and services, capturing of information from remote locations, and evidence gathering through phones.
- *MGOV4D framework* – The framework integrates the implementation of MICT4D initiatives with the implementation of the governance mechanism.

On the MGOV4D framework, the generic strategies are:

- Government involvement of the civil society in the MICT4D and MGOV4D initiatives,
- Integrating the support for vulnerable groups into existing public reform and decentralization frameworks,
- Promotion of low-cost mobile phones accessible to poor,
- Development of government capabilities to support the delivery of information and services,
- Using mobile phones as channels for accessing government information and submitting information to government,
- Enabling support for the delivery of legal evidences and information through mobile phones, and
- Enabling participation of vulnerable groups in elections and decision making.

An important aspect of the head porters' needs not highlighted much in this paper is the need to support the preparation for future jobs, as most women consider the head porter job as temporary one – done essentially to raise the capital for future investments. In line with this, [23] for instance suggested as part of its recommendations that the Ghanaian government should provide adult literacy programs to build better management skills.

On the validity of the information we obtained from our case study, we found a good degree of convergence between our data and the facts presented in [23], for instance in the livelihood concerns. Considering our model, it has proven to be useful in analyzing the case study in Section 5 and the initiatives in Section 6 as a basis for answering our research questions. The model will be further refined and validated based on more case studies. However, in terms of the model elements, the MDG adopted in this paper as development outcomes could be substituted for social inclusion goals. Similarly, the governance mechanisms could be refined based on the field evidence.

8. CONCLUSIONS

The goal of this work is to show how to develop sustainable Mobile Information and Communication Technology for Development (MICT4D) initiatives by explicitly considering the good governance factors. We conceptualized Mobile Governance for Development (MGOV4D) initiatives by integrating MICT4D initiatives with the necessary governance mechanisms. Our argument is that the implementation of MICT4D initiatives alone is unlikely to produce the expected development impact. Using this framework, we determined the MGOV4D requirements for a particular vulnerable group – migrant head porters in Ghana, and proposed generic MGOV4D strategies for this group relying on the documented experiences from other parts of Africa and the world. Our future work will validate the model and develop tools to assist international development practitioners in applying it.

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