USE OF MOBILE PHONE TECHNOLOGIES TO IMPROVE ADDO OPERATIONS AND SERVICES

SITUATIONAL AND OPTIONS ANALYSES REPORT

SUBMITTED BY: Invention and Technological Ideas Development Organization (ITIDO) to Sustainable Drug Seller Initiatives Program (SDSI)

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ACRONYMS AND ABBREVIATIONS

ADDO	Accredited Drug Dispensing Outlet
CDC	Center for Disease Control
DLDB	Duka La Dawa Baridi
DMO	District Medical Officer
Dpharm	District Pharmacist
EPOCA	Electronic and Postal Communications Act
FCC	Fair Competition Commission
GPS	Global Positioning System
ICT	Information Communication Technology
M4RH	Mobile for Reproductive Health
mHealth	Mobile Technology Health Project
MoHSW	Ministry of Health and Social Welfare
NHIF	National Health Insurance Fund
NMCP	National Malaria Control Program
NTP	National Telecommunication Policy
RMO	Regional Medical Officer
SDSI	Sustainable Drug Seller Initiatives
SEAM	Strategies for Enhancing Access to Medicines
SMS	Short Message Service
SOW	Scope of Work
TCRA	Tanzania Communication Regulatory Authority
TFDA	Tanzania Food and Drugs Authority
TTCL	Tanzania Telecommunication Company Limited
URT	United Republic of Tanzania

DEFINITION OF TERMS

USSD: Unstructured Supplementary Service Data (USSD) is a protocol used by GSM cellular telephones to communicate with the service provider's computers. USSD can be used for WAP browsing, prepaid call-back service, mobile-money services, location-based content services, menu-based information services, and partly phone configuration on the network.

IVR: Interactive Voice Response (IVR) is a technology that allows a computer to interact with humans through the use of voice and DTMF tones input via keypad.

SMS: Short Message Service (SMS) is the text messaging service component of phone, web, or mobile communication systems, using standardized communications protocols that allow exchange of short text messages between fixed line or mobile phone devices.

MMS: Multimedia Messaging Service (MMS) is a standard way to send messages that include multimedia content on mobile phone. It extends the core SMS (Short Message Service) capability that allowed exchange of text messages only up to 160 characters in length.

WEB Interface: Refers to the interaction between a user and software running on a Web server. The user interface is the Web browser and the Web page it Web page it downloads and renders. (See also Web application and Web server).

EXECUTIVE SUMMARY

In June 2012, Management Sciences for Health (MSH) through the Sustainable Drug Seller Initiatives (SDSI) Project, commissioned Invention and Technological Ideas Development Organization (ITIDO), a local organization with expertise in mobile technology, software development and ICTs; to conduct a study on integration of mobile phone technology in implementation of the Accredited Drug Dispensing Outlets (ADDO) Program. The study was conducted in two selected districts, namely Bagamoyo and Manyoni, in Pwani and Singida regions, respectively.

The primary objective of the study was to explore feasibility of using the mobile phone technology to strengthen ADDO operations and services. Specific objectives were to:- (i) describe the situation of the mobile communications industry in Tanzania; (ii) identify mobile health (mHealth) projects in Tanzania already using the technology for possible linkage with the ADDO program; (iii) assess availability and use of the technology by ADDO providers and wholesalers; (iv)propose various strategies and options to promote use of the technology in different aspects of the ADDO program implementation; and (v) facilitate a stakeholders' workshop to review findings and recommendations from the study, with a view of identifying priority interventions that can contribute to long term sustainability of the program.

Data was collected through desk review of literature and field survey. Primary data was collected through structured interviews with a total of 100 ADDO providers (dispensers and owners) drawn from 85 drug shops across the study area (50 in Bagamoyo and 35 in Manyoni). Other participants in the study were pharmaceutical wholesalers (ADDO suppliers), regional and council officials, mobile phone operators, regulatory agencies (TFDA and Pharmacy Council) and mHealth projects. Data collected from the field survey was processed electronically using the SPSS program, and subjected to two rounds of cleaning to generate specific data sets. The data sets were then transferred to MS Excel where result tables were generated to aid systematic analysis of findings and report writing.

FINDINGS FROM THE STUDY

Findings from the study focus on three main areas: (i) situation of the telecommunications industry including economic and policy context, legal and regulatory environment, market scenario, and major challenges in the industry; (ii) use of the mobile phone technology in health promotion; and (iii) availability and use of the mobile communication technology on the ADDO sector.

Situation of the Telecommunications Industry

Information gathered from the desk review revealed that the telecommunications industry is among the fastest growing sectors of Tanzania's economy. In 2009, the industry grew by 21.9%, up from 20.5% in 2008 and accounted for 2.1% of the country's GDP. Activities of the industry are guided by a sound policy framework outlined in the National Information and Communications Technology (ICT) Policy of 2003 and the National Telecommunications Policy of 1997; with the Ministry of Communications, Science and Technology as the custodian and overseer of implementation of the policies.

The industry is governed by an elaborate legal and regulatory framework which includes the Communications Act of 1993, Tanzania Broadcasting Services Act of 1993, Tanzania Communications Regulatory Authority Act of 2003, Fair Competition Act of 2003, the Universal Communications Service Access Act of 2006, and the Electronic and Postal Communications Act of 2010. Telecommunications Regulatory Authority (TCRA) is the government agency responsible for regulating and licensing the postal, broadcast and communication industries.

It was also learnt that there are 11 mobile network operators registered in the Tanzanian market. Among the major players are Vodacom, Airtel, Tigo, TTCL-Mobile, Zantel-Mobile, Sasatel and Benson Informatics. However, their penetration level on a national scale is only 30%, an indication that there is still room for growth. It is estimated there are 17 million mobile phone users in Tanzania, though a recent report by TCRA showed that there were 25,827,518 mobile network subscribers by December 2011.Vodacom has the largest share of subscribers (45%), followed by Airtel (27%), Tigo (21 %), Zantel (6%), TTCL (1 %), Sasatel (0.02%) and Benson Informatics (0.01%).

Cost of mobile communication services are believed to be generally high in Tanzanian compared to other countries in the East African region. Local on-network call charges range from Tsh.30 to Tsh.105 per minute and local off-network call charges from Tsh.150 to Tsh.231 per minute. Local short text messages service (SMS) charges range from Tsh.25 to Tsh.49 per message, while international SMS charges range from Tsh.70 to Tsh.120 per message.

The major challenges in the mobile communication industry are: limited reach of the mobile networks (overall penetration level is only 30%), unstable network coverage, lack of electricity especially in rural areas, inadequate privacy of some networks and fraud on some mobile money (mMoney) platforms.

Use of the Mobile Phone Technology in Health Promotion

The study revealed that there are about 40 mobile health (mHealth) projects in Tanzania Mainland and Zanzibar. Most of the projects are still in pilot phases and have limited geographic reach. The projects mainly focus on reproductive and child health services, HIV and AIDS, and malaria. Among the major mHealth projects which could linked to the ADDO program are: m4RH implemented by FHI360, "SMS for Life" by the National Malaria Control Program (NMCP), AMFm Electronic M&E System by Tanscott Associations under NMCP, and ILS Gateway by the JSI DELIVER project in partnership with the Ministry of Health and Social Welfare (MoHSW).

It was also learnt that there on- going deliberate efforts to promote collaboration and coordination among different mHealth projects in Tanzania. This is best demonstrated by establishment of the Tanzania mHealth Community of Practice, a national network bringing together organizations and groups supporting mHealth initiatives in Tanzania Mainland, under the leadership of the Ministry of Health and Social Welfare. The ministry has also appointed a national mHealth coordinator, and developed an mHealth public private partnership (PPP) policy framework to promote collaboration between the public and private sectors in mHealth initiatives.

Availability and Use of the Mobile Communication Technology in the ADDO Sector

During the field survey, all ADDO providers (owners and dispensers) and pharmaceutical wholesalers (100%) who participated in the study had a mobile phone. Wholesalers had relatively more advanced phones than ADDO providers. Unlike the ADDO providers, 27% of the wholesalers had smart phones such as Blackberry (Curve, Bold), Nokia (N90), iPhone (3, 4s) and Samsung, which are quite advanced and can perform several IT related functions. Most of the smart phones range from USD100 in the local market.

The study showed that mobile phone technology enjoys an overwhelmingly positive perception among ADDO providers and their suppliers (wholesalers) as a business tool. About the 99% of ADDO providers described the technology as a useful innovation, and 75% believed that it has the potential to improve their businesses. All wholesalers (100%) and 90% of ADDO providers use mobile phones in day-to-day business activities. Both ADDO providers and pharmaceutical wholesalers mainly use mobile phones to make voice calls and send short text messages (SMS). Among the ADDO providers, voice calls and SMS account for 36% and 35%, respectively, of all phone functions performed. A similar trend was observed among wholesalers, with voice calls and SMS accounting for 32% and 21%, respectively, of all performed phone functions.

The study further demonstrated that wholesalers generally better equipped for IT use than ADDO providers. About 82% of the wholesalers had a computer mainly used for electronic stock management. However, only 13% of the computers were connected to the Internet, leaving most of the wholesalers with mobile phone as the preferred means of communication.

It was learnt that ADDO providers also use mobile phones to share information with each other. About 33% mentioned sharing information on product price and availability, 23% on technical product information (usage, dosage, reactions etc.), and 22% on training opportunities including seminars and workshops. Some even mentioned sharing information on dispensing practices (15%), while 8% reported sharing business experiences and employment issues.

Regarding use of mobile phones in referral care for ADDO patients, about 92% of ADDO dispensers reported referring patients to the nearest health facility. However, 68% of the referrals are verbally made mainly due to shortage of referral forms. Only 34% of the ADDOs reported receiving counter-referral forms from health facilities. The majority of respondents were of the opinion that effective use of mobile phone can be help to improve referral care even where referral forms are lacking.

In terms of potential use of mobile phones in providing technical assistance to ADDOs, 49% of dispensers mentioned that they have ever come across dispensing issues which needed clarifications or consultation with regulatory authorities and/or other technical experts. Consequently, all the dispensers (100%) supported establishment of a helpline to enable them to get the necessary technical assistance on emerging issues such as adverse drug reactions, through their mobile phones. About 93% of ADDO providers indicated willingness to pay for such services if need be. The study further revealed that 98% of ADDO providers would be interested in using the phone for educational purposes, 74% of which would be interested in learning about new products, 21% about public health issues especially reproductive and child health services, and 3% on ICT use in ADDO management.

With regard to procurement of supplies, it was learnt that ADDO providers are yet to start using the mobile phone technology in this operational area. Sixty three percent (63%) of the providers mentioned that they mainly purchase stocks through ordering and physical visit to the supplier. Wholesalers confirmed that about half of their clients (50%) who are mainly ADDOs, purchase stocks through physical visits. Ninety eight percent (98%) of the providers pay for stocks using hard cash while the remaining 2% use bank transfers. None of the ADDO providers reported using mobile money services to pay for stocks. Conversely, 87.5% of wholesalers reported using mMoney facilities in their business transactions.

Regarding use of the mobile phone technology in management of health insurance schemes linked to ADDOs, the study showed that only 6% of ADDOs in the study area are accredited by the National Health Insurance Fund (NHIF). Some of the issues which stop ADDOs from registering in the scheme are: delayed reimbursement (mentioned by 34% of the respondents), lack of awareness of among NHIF beneficiaries about ADDOs accredited by NHIF (34%), rejection of claims (16%) and unknown deductions (16%). The majority were of the view that mobile phone technology could be helpful in addressing some of the issues. The ADDO providers explained that NHIF could use SMS to inform its members about ADDO services and alert ADDO providers of ready payments. NHIF could also use any of the existing mMoney services to pay ADDOs so that they do not have to wait until their claims accumulate to Tsh.100,000 before being paid by check as per NHIF procedures, or travel all the way to NHIF regional headquarters to collect payment. The providers said they can also use mobile phones to follow up payments and forward complaints to the fund.

In terms of feasibility and cost recovery from mobile phone use, all wholesalers (100%) and 95% of ADDO providers indicated that it is possible to recover the cost of using a mobile phone from the accrued business gains. About 80% of ADDO providers expressed willingness to invest more in mobile phone use to support their business operations, if the cost does not exceed Tsh.100,000.

RECOMMENDATIONS AND FUTURE STRATEGIES

Based on the findings from the field survey, the study made a number of recommendations and outlined various strategies for integrating mobile technology in the ADDO program implementation.

Recommendations

Recommendations from the study underscored the need for public private partnership in implementation of mHealth projects, and use of mobile technologies that are compatible with the types of phones used by ADDO providers and their suppliers. The recommendations paid particular attention to various areas in which the mobile technical could be used to improve ADDO operations and services. The intervention areas include: procurement of supplies plus payment systems; communication with regulatory authorities; coordination and reporting; information sharing on different aspects of the program including product information; continuing education and technical support to ADDO providers ; registration/accreditation systems and payment of regulatory fees; reimbursements of sales by health insurance companies; referral and counter referral for ADDO clients; integration of ADDO with other health programs through mHealth platforms; and linkage with financial institutions at local levels; among others.

Based on the above intervention areas, the study proposed establishment of a mobile information system driven by an Electronic Information and Service Centre Database whose main function will be to receive and process information from different stakeholders and disseminate it using relevant applications (e.g. web, SMS, USSD). The database will consist of the following components:

- Detailed contact information of all ADDOs including owners and dispensers
- Detailed contact information about ADDO suppliers (wholesalers)
- ADDOs registrations/accreditation status
- Payment of regulatory fees including penalties
- Availability and pricing of ADDO products stocked by different wholesalers
- Technical information about ADDO products (e.g. usage , dosage, reactions, price, etc.)
- ADDOs reporting system
- ADDO consultation/helpline
- Mobile payment systems

Strategies for the Future

One of the expected outputs from the study was a strategy for integrating mobile communication technologies in the ADDO program, with a view of strengthening operations of ADDOs both technically and commercially, improving coordination and reporting, facilitating monitoring and evaluation processes, and improving the quality of ADDO services. It is envisaged that institutionalizing mobile communication technologies in the ADDO systems will go a long way to enhance long term sustainability of the program.

Based on this understanding, as well as the findings and recommendations from the field survey, the study came up with the following five strategies to help operationalize the proposed ADDO information system and institutionalize use of the mobile communication technology in implementation of the program:

- **Strategy 1:** Establishing mCommerce System that will integrate different transaction needs of ADDO providers, wholesalers and regulatory authorities. This will cover licensing, registration, training and reimbursements (by government and insurance schemes), drug order payments, association fee, loan applications and loan repayment.
- **Strategy 2:** Establishing an Electronic Information Services System that will provide information on ADDO monthly reports, adverse drug reactions, list of ADDOs and dispensers, regulatory issues and standards, and drugs information among others.

- **Strategy 3:** Establishing an Electronic Logistic Management System that will address the issues of product availability, product stock status and procurement.
- **Strategy 4:** Establishing a Client Service Management System which will provide information on patient drug registration, referral, counterfeit drug reporting, emergencies and consultations, and Product quality check and reporting.
- **Strategy 5:** Establishing an SMS Reminder Platform that will automate information on due payments, renewal of licenses, registration, ongoing or upcoming activities e.g. seminars, among others.

Implementation of the above strategies is expected to lead to establishment of an Integrated Mobile Information System with the five underlined areas as the key components. The system will form an integral part of the ADDO Electronic Information and Service Centre Database.

PRIORITY INTERVENTIONS

In Septembers 2012, Management Sciences for Health in collaboration with the Pharmacy Council and Tanzania Food and Drugs Authority, convened a national conference to review the findings and recommendations from the study and identify priority interventions towards integration of the mobile phone technology in ADDO operations and services. Consequently, the stakeholders unpacked the various components of the proposed ADDO mobile information system and picked out items which they thought could fit in the ADDO basket of priorities. They also discussed how the proposed mobile technology interventions could be integrated with geo-technologies for optimal results, and recommended a simple architecture to operationalize the envisioned system.

The priority items identified by the stakeholders were put in two categories: (i) regulatory issues with reference to roles and responsibilities of regulatory bodies; and (ii) ADDO operational needs with reference to both technical and commercial functions. Among the regulatory issues prioritized were registration/accreditation of ADDOs, management of regulatory fees (collection and disbursement), coordination and reporting, regulatory oversight at all levels and ADDO products quality monitoring. The priority ADDO operational needs included ADDO products availability (procurement and stock management), training of ADDO providers including continuing dispenser education, regular reporting by ADDOs, and product quality monitoring and reporting.

1. BACKGROUND

1.1 INTRODUCTION

In 2012, the Bill and Melinda Gates Foundation provided Management Sciences for Health (MSH) with a three-year grant to continue its efforts in Africa to involve private drug sellers in enhancing access to essential medicines. The Sustainable Drug Seller Initiatives (SDSI) Project builds on the MSH's Strategies for Enhancing Access to Medicines (SEAM) and the East African Drug Seller Initiatives (EADSI) Program. These programs focused on creating and implementing public-private partnerships using government accreditation to increase access to quality pharmaceutical products and services in underserved areas of Tanzania and Uganda. The new program's goal is to ensure the maintenance and sustainability of these public-private drug seller initiatives in Tanzania and Uganda and to introduce and roll out the initiatives in Liberia.

The program intends at expanding access to medicines and treatment in different geographical areas as well as solidifying the global initiatives to strengthen the quality of pharmaceutical products and services provided by private sector drug sellers in a feasible, effective, and sustainable manner.
The primary objectives of the Sustainable Drug Sellers Initiatives Program (SDSI) are to:-

(i) Enhance accredited drug seller initiatives' long-term sustainability, contributions to community-based access to medicines and care, and ability to adapt to changing health needs and health system context;
(ii) Facilitate the spread of private-sector drug seller initiatives; and
(iii) Define and characterize information related to consumer access to and use of medicines and facilitate its use in developing public health policy, regulatory standards, and treatment guidelines.

In Tanzania, one of the SDSI objectives is to enhance the Accredited Drug Dispensers Outlets (ADDO) Program long-term sustainability, contributions to community-based access to medicines and care, and ability to adapt to changing health needs and health system context. Prior to introduction of the ADDO program, retail drug outlets, commonly known in Kiswahili language as *Duka la Dawa Baridi* (DLDB) had been authorized by the Tanzania Food and Drugs Authority (TFDA) to provide nonprescription drugs in the private sector for number of years. With an estimated number of more than 6,000, the DLDB constituted the largest licensed retail outlets for purchasing medicines in the country.

However, operations of DLDBs got plagued with several problems including non-compliance with the list of medicines authorized for sale in the shops, inadequate facilities for proper storage of medicines, lack of basic qualifications and training for dispensing staff, inadequate business management skills among shop owners, lack of supportive supervision to the drug shop owners and dispensers, and weak enforcement of regulations.

Consequently, in 2003, the then Ministry of Health (now Ministry of Health and Social Welfare) through Tanzania Food and Drugs Authority (TFDA), introduced the Accredited Drug Dispensing Outlets Program under the MSH's Strategies for Enhancing Access to Medicines (SEAM) Program funded by the Bill and Melinda Gates Foundation, to help address some of the problems associated with operations of DLDBs. The goal of the ADDO program is to increase access to essential medicines and services in underserved areas, mainly rural and peri-urban areas. The major interventions include training of drug shop owners and dispensers on basic business management and dispensing skills, respectively; supportive supervision to the ADDO providers (owners and dispenser); improving physical condition of premises including storage facilities; routine inspection of the drug shops to ensure adherence to regulations and standards; and consumer awareness and education to promote utilization of the ADDO services.

The program was first piloted in Ruvuma Region and later rolled out by the Government of Tanzania to other regions in the country. The rollout was informed by results of the pilot process which showed that the program had increased access to both non-prescription and selected prescription medicines (*SEAM 2005, DANIDA 2006*). By June 2012 the program had been rolled out to 15 out of 21 regions in Tanzania Mainland, leading to establishment of over 3,500 ADDOs and training of more than 7,000 dispensers.

As the program edges closer to full national coverage, establishment of an efficient mechanism to monitor the implementation process as well as quality, will be critical to long term sustainability. Currently, both the central and council levels experience difficulties getting information from ADDOs spread out across the country, partly due to vastness of the country and remoteness of most rural areas where the ADDOs are found. The central and council levels mainly rely on information gathered from supervision and inspection visits, many of which are not conducted regularly. The situation is exuberated by overdependence on the existing paper-based systems for information gathering and reporting, whose effectiveness is further impaired by human resource constraints and weak coordination at various implementation levels. The geographic accessibility challenge is also a major factor in the cost of doing business to many ADDO Providers, especially those who have to purchase stocks from distant wholesalers based at district and regional centers.

However, amidst these challenges, mobile communication technology offers new avenues to increase information flow across different geographic divides and levels of the ADDO program implementation. The technology is widely available in Tanzania with a significant proportion of the population already using mobile phones. The technology is a major development resource, which if well utilized, could contribute significantly to improving ADDO services. The SDSI project seeks to establish a system that will formalize use of the mobile phone technology to facilitate communication, reporting, supervision, monitoring, continued education to ADDO dispensers, and increase product availability.

Consequently, Management Sciences for Health through the SDSI project, commissioned Invention and Technological Ideas Development Organization (ITIDO), a local organization with expertise in mobile technology, software development and ICTs; to conduct a study on feasibility of using the mobile phone technology to improve ADDO operations and services, and recommend various strategies and options for integrating the technologies in the ADDO program implementation. Since its inception in 2008, ITIDO has been involved in ICT for development (ICT4D) initiatives and has worked with various local and international organizations to implement ICT projects especially in health and Education sectors.

1.2 OBJECTIVES OF THE STUDY

The main objective of the study was to explore feasibility of using the mobile communication technology to strengthen ADDO operations and services, particularly in the areas of monitoring and supervision; product quality, availability and improvement; and continued education. The specific objectives were to:

(i) Describe the situation of the mobile communications industry in Tanzania;
(ii) Identify existing mHealth projects in Tanzania already using mobile communication technology;
(iii) Assess availability and use of mobile technology by ADDO providers (owners and dispensers);
(iv) Propose various strategies and options for use of the mobile communication technology in the ADDO program (options analysis), taking into consideration different operational needs and functions such as reporting and information sharing; continuing education, distance learning and test administration; reimbursement by insurance schemes (NHIF/CHF); drug registration information; drug product problem reporting; adverse drug reaction reporting; product availability checks; and ordering of supplies and payments;
(v) Facilitate stakeholders workshop to gain consensus on the proposed strategies and recommendations for use of the mobile communication technology in the ADDO program implementation.

2. METHODOLOGY

Methodology of the study involved four major steps: desk review of literature on Tanzania's mobile communication industry, field research to collect primary data from selected districts, primary data processing and analysis, and stakeholder review of findings and recommendations to identify priority interventions.

2.1 DESK REVIEW

The desk review focused on understanding the situation of the mobile communications industry including the market scenario, players, policies and regulations, as well as major problems and challenges facing the industry. Among the documents reviewed were reports by Tanzania Communication Regulatory Authority (TCRA) and other published resources by the academia.

2.2 FIELD SURVEY (DATA COLLECTION)

Primary data was collected in Bagamoyo and Manyoni districts of Pwani and Singida regions, respectively. The data was collected through interviews with ADDO providers (owners and dispensers), ADDO suppliers (wholesalers), regional and council officials, mobile phone operators, regulatory agencies (TFDA and Pharmacy Council) and mHealth platforms. The ADDO providers were drawn from a total of 85 different drug shops (50 in Bagamoyo and 35 in Manyoni). Interviews were conducted using a standardized interview guide for each key informant group (*see Annex V)*. The tools were developed in consultation with MSH and the Pharmacy Council, and pre-tested in Dar es Salaam and Mukuranga district (Pwani Region) to ensure their relevance and technical appropriateness.

2.3 DATA PROCESSING AND ANALYSIS

The data collected from the field survey was processed electronically using the SPSS program, and subjected to two rounds of cleaning to generate specific data sets. The data sets were then transferred to MS Excel where result tables were generated to aid systematic analysis and report writing.

2.4 NATIONAL STAKEHOLDERS WORKSHOP

The study report was disseminated at a national workshop bringing together ADDO stakeholders from different levels. The purpose of the workshop was to review findings and recommendations from the study and identify priority interventions for effective use of the mobile communication technology in implementation of the ADDO program. Recommendations from the workshop formed part of the outputs from the study.

3. FINDINGS

Findings from the study focus on the following three major areas:

- Situation of the mobile communication industry in Tanzania;
- Use of mobile phone technology in health promotion; and
- Availability and use of the mobile technology by ADDO providers and pharmaceutical wholesalers.

3.1 SITUATION OF THE MOBILE COMMUNICATIONS INDUSTRY IN TANZANIA

Information gathered from desk review of documents showed that Tanzania's telecommunications sector is among the fastest growing sectors of the country's economy. In 2009, it recorded a growth rate of 21.9%, up from 20.5% in 2008 and accounted for 2.1% of the country's GDP (*Tanzania Budget Speech 2010/11*). Activities of the sector are guided by the National ICT Policy of 2003 and the National Telecommunications Policy of 1997, with the Ministry of Communications, Science and Technology, as the custodian of the policies. Both policies underscore the need for continued use of technological innovations for economic and social development. Information and communication technologies have been widely cited as major catalysts of development and important tools in the fight against poverty.

3.1.1 Legal and Regulatory Framework

In term of legal and regulatory framework, the telecommunications sector is governed by the Communications Act of 1993, the Tanzania Broadcasting Services Act of 1993, the Tanzania Communications Regulatory Authority Act of 2003, and the Universal Communications Service Access Act of 2006. These legislations were recently harmonized in Electronic and Postal Communications Act (EPOCA) enacted in 2010 (*URT, 2010*).

The Communication Act of 1993 paved way for liberalization of the telecommunications sector, while the National Telecommunication Policy (NTP) of 1997 provided a framework for further reforms and private-sector engagement in the sector. A major milestone in telecommunication liberalization was establishment of the Telecommunications Regulatory Authority (TCRA) in 2003, as an independent agency responsible for regulating and licensing of the postal, broadcast and communication industries. More information on other regulations embedded in the TCRA Act of 2003 can be found in *Annex II*. The regulations have been subject to reviews over the past decade to make them responsive to the fast-changing needs of the ICT sector.

3.1.2 Mobile Communication Regulatory Bodies

Tanzania Communication Regulatory Authority is the leading regulatory body in the country's telecommunications industry. Other key actors are the Ministry of Communications, Science and Technology whose functions are clearly spelt out in the Act establishing TCRA; and the Fair Competition Commission (FCC) which is an independent government body established under the Fair Competition Act No. 8 of 2003. The primary role of FCC is to promote fair competition in trade and commerce and protect consumers from unfair and/or unethical practices by any market player. Specifically, the commission is mandated to ensure that fair competition is encouraged and achieved by regulating and preventing significant market dominance, price fixing and extortion by monopoly to detriment of consumers and market stability. The FCC Act co-exists with other sector-specific regulatory frameworks.

3.1.3 Registered Mobile Operators in Tanzania and Market Share

Tanzania mobile communication market has enjoyed impressive growth over the past decade in terms of number of operators as well as subscribers. There are about 25 million mobile phone users in Tanzania, out of a population of about 43 million. The major mobile operators are Vodacom, Airtel, Tigo, TTCL-mobile, Zantel-mobile and Sasatel. However, the penetration level is only about 30%, an indication that there is still room for growth. A quarterly market report published by TCRA in December 2011 showed that Vodacom had the highest number of subscribers (11.6 million), followed by Airtel (6.99 million), Tigo (5.45 million), Zantel (1.524 million), TTCL (225,000), Sasatel (5,824) and Benson Informatics (1,558). The figures translate to 45% of the total market share for Vodacom, followed by Airtel (27%), Tigo (21 %), Zantel (6%), TTCL (1 %), Sasatel (0.02%) and Benson Informatics (0.01%).

3.1.4 Mobile Technology Users in Tanzania

Over that past five years, the number of mobile phone users has tremendously increased in Tanzania. It is estimated that more than half of the population (25,827,518 million subscribers)[1] owns at least a phone. The growth is largely attributed to increased importation of competitively priced phones especially from China, a trend which has brought down prices in the local market and allowed many ordinary Tanzanians to acquire mobile phones. It has been observed that most mobile subscribers use phones that cost less than USD100, the majority of which originate from China.

[1] TCRA Telecommunication, Dec 2011

3.1.5 Cost of Mobile Communication Services

Despite the rapid growth in number of mobile phone operators and subscribers, the cost of telecommunication services in Tanzania remain considerably high compared to the situation in other countries in the East Africa region. Table 1 below highlights telecommunication charges by different mobile operators in Tanzania.

Table 1: Mobile communication charges in Tanzania shillings

Charges	Vodacom	Airtel	Tigo	ZanTel	TTCL	Benson	Sasatel
On Network Calls	105	75	71	83	105	30	30
Off Network Calls	180	180	180	150	230	150	231
East Africa Calls	333	194	310	354	330	300	339
International Calls	507	478	467	428	450	467	458
SMS (National)	45	45	49	40	0	25	45
SMS (International)	100	100	120	75	0	70	77

3.1.6 Major Challenges in the Mobile Communication Industry

Even though significant development has been realized in the country's telecommunications industry, optimal utilization of the mobile technology by the population for development is constrained by a number of challenges including unstable and limited mobile network coverage, lack of electricity especially in rural areas, inadequate privacy of certain mobile services and fraud especially on mobile money platforms.

3.2 USE OF THE MOBILE PHONE TECHNOLOGY IN HEALTH PROMOTION

The mobile communication technology has created many opportunities for development. The mobile health platform, commonly known as mHealth, is among the innovative initiatives which use the technology to bring essential services closer to the population. The mHealth platform mainly relies on short messages service (SMS) to disseminate health information and support preventive, diagnostic as well as treatment services. The study revealed that there are about 40 organizations working on different mHealth projects in Tanzania Mainland and Zanzibar (see *Annex III*). However, most of the projects are still in a pilot stage and have limited geographical coverage. The projects mainly focus on reproductive and child health services, HIV and AIDS, and malaria. On the Mainland, the mHealth organizations and groups have formed a network known as Tanzania mHealth Community of Practice, whose aim is to facilitate sharing of knowledge and experiences among the members.

The Ministry of Health and Social Welfare (MoHSW) is increasingly paying attention to the mHealth platforms, and recently appointed a national mHealth Coordinator to monitor activities of the platform. With support from the Centre for Disease Control (CDC), the Ministry has also developed an mHealth Public Private Partnership (PPP) policy framework (*see Annex IV*) to encourage active participation of the private sector including mobile phone operators in mHealth initiatives. Currently, the Ministry chairs the Tanzania mHealth Community of Practice network.

Close involvement of mobile operators is essential for successful implementation of mHealth projects since the providers have the necessary infrastructure to support activities of the platform. However, their buy-in mainly dependents on the business value added as they contribute to social good. Among all the registered mobile operators in Tanzania, Vodacom has so far played the most active role in implementation of mHealth initiatives. The operator has created a special system called "Mezzanine Platform", to provide the necessary Application Programming Interface (API) support to mHealth projects. They have also opened their doors to organizations wishing to collaborate with them to integrate the mHealth platform with other platforms such as the mobile money service (m-Pesa). Other operators such as Airtel, Tigo and Zantel, also have the capacity to provide similar services, hence efforts should be made to engage them more proactively in mHealth initiatives.

3.2.1 Potential Linkage Between mHealth Projects and ADDO Services

The study identified various mHealth projects which could be linked to ADDO services. The projects include the Mobile for Reproductive Health (m4RH) implemented by FHI360, "SMS for Life" implemented by the National Malaria Control Program (NMCP), the Affordable Medicines Facility-malaria (AMFm) monitoring and evaluation component implemented by Tanscott Associates, and Integrated Logistics System (ILS) Gateway implemented by the John Snow Incorporated (JSI) DELIVER project in partnership with the Ministry of Health and Social Welfare.

(a) Mobile For Reproductive Health (m4RH) Project

The project objective is to disseminate family planning education to communities through short text messages (SMS). The system is integrated with clinics and health facilities which provide family planning services. Its aim is to promote access to family planning services by enabling clients to identify the nearest facility where they can find the services. To be able to get information through the system, user are required to send a text message carrying the word m4RH to a short code number 15014 upon which

an automated reply is sent to the user with instructions on how to access more information related to family planning through the system. The project's pilot phase began in March 2011 and is scheduled to end in June 2013. More information about the project can be found in *Annex III*. The study identified the following avenues for linking the project with the ADDO program.

- m4RH can assist ADDO providers to learn more about family planning and advise ADDO users on the same.
- ADDO providers can direct clients to access the system through the short code number for more information on family planning.
- Information on ADDOs can be included in the m4RH system to enable its users to identify the nearest ADDOs where they can find quality medicines and services.

(b) SMS for Life Project

The "SMS for Life" project is a public-private initiative that harnesses everyday technology to improve the supply, planning and access to malaria treatment. The initiative uses a combination of mobile phones, SMS and electronic mapping technology to generate information on stock availability of Artemisinin-based Combination Therapy [specifically four different packs of Artemether-Lumefantrine (Alu)] and quinine injectables], and delivers the information to all public health facilities on a weekly basis. The visibility is meant to eliminate stock-outs and ultimately result in reducing the number of deaths from malaria. The initiative was piloted between 2009-2012 in three rural districts of Tanzania Mainland (Lindi, Kigoma and Ulanga) through a collaborative partnership between the Ministry of Health and Social Welfare, Novartis, the Roll Back Malaria Partnership, IBM and Vodafone.

The system consists of two components: an SMS management tool and a web-based reporting tool. The SMS application stores a single registered mobile telephone number for one healthcare worker at each health facility. Once a week, a stock request is sent by SMS to each of these telephone numbers. Stock messages are sent back in reply using a free short code number at zero cost to the healthcare worker. A standard message format is used to capture stock quantities of ALu and quinine, and formatting errors are handled through follow-up SMS messages to the facility.

The data captured from the SMS stock count messages is made available via a secure website for which access requires a unique user identification and password. Access is provided to the District Medical Officer (DMO) and his/her staff in each participating district, the relevant Regional Medical Officers and their staff, the project team, the National Malaria Control Program (NMCP) and Medical Stores

Department's central and zonal stores affiliated with each district. The website provides:
(i) current and historical data on ALu and quinine injectable stock levels at the health facility and district level, (ii) Google mapping of district health facilities with stock levels overlays and stock-out alerts, (iii) SMS messaging statistics e.g. errors, received messages; and (iv) usage statistics.

At the district level, one focal person appointed by the DMO is assigned to redistribute medicines in response to stock-outs identified by the SMS for Life system. Redistribution is undertaken by either telephoning health facilities with stock-outs to inform them of excess stock in a neighboring health facility, or by contacting the malaria focal person in the district to request that they move stock from a health facility with a high stock level to a neighboring facility.

Since ADDOs are currently part of the national mechanism to increase access to low-priced quality-assured ACTs under the AMFm scheme, the SMS for Life system could also be used to monitor availability of the antimalarials in the drug outlets especially in remote hard-to-reach rural areas.

(c) ILS Gateway

The ILS Gateway is a mobile health alert and reporting system designed to increase the visibility of logistics data and improve availability of essential medicines in public health facilities. Through the platform, the responsible health facility staff receives a reminder from the gateway to count and report stocks in his/her facility. The officer uses personal cell phone to send logistics data via text message (SMS) to a toll-free number. This data is then transmitted to a website that analyzes and displays the information.

A pilot program using the ILS Gateway began in November 2010 in Newala, Masasi and Tandahimba districts of Mtwara Region, through collaboration between the Ministry of Health and Social Welfare and the JSI DELIVER project. The pilot began with an initial commodity list of six reproductive health commodities and later expanded to 20 tracer commodities identified by the MoHSW from different health programs. Moving forward, the project and partners hope to link this mobile health logistics system to other automated health systems being developed by the JSI DELIVER Project and its partners. It is envisaged that as logistics data visibility improves, decision-makers and health workers at all levels will be able to improve availability of health commodities in public health facilities. The project offers useful insights for monitoring availability of essential medicines and health commodities distributed through ADDOs.

(d) AMFm Electronic Monitoring and Evaluation System

The electronic AMFm monitoring and evaluation system managed by Tanscott Associates on behalf of National Malaria Control Program uses mobile phones installed with JAVA[2]-enabled application to collect stock data in ADDOs and private health facilities on a monthly basis. The data is sent and stored in a centralized web-based database, from where it is analyzed and shared with relevant authorities. The system can help to monitor ADDO sales, check registration status using license number field, assist in distribution of drugs, monitor rational use of medicines and facilitate revenue collection from ADDO license fee. See *Annex III* for more detailed information about the system.

3.3 AVAILABILITY AND USE OF THE MOBILE PHONE TECHNOLOGY BY ADDO PROVIDERS AND PHARMACEUTICAL WHOLESALERS

3.3.1 Availability of Mobile Phones in ADDOs and Wholesale Shops

All ADDO providers (owners and dispensers) and pharmaceutical wholesalers who participated in the study had a mobile phone. About 54% of phones owned by ADDO providers were Nokia brands, and 27% were Chinese Tachno brands. Likewise, 54% of wholesalers had Nokia phones. About 27% had smart phones such as Blackberry (Curve, Bold), Nokia (N90), iPhone (3, 4s) and Samsung. The rest had the Chinese Techno brands. Tables 2, 3 and 4 below show different brands and models of phones used by ADDO providers and pharmaceutical wholesalers. Brand name and model type are significant in the sense that they determine the type of functions and services a particular phone can serve. For example, Nokia C series can support all JAVA enabled applications (*an environment within mobile phone to enable JAVA application to be installed and run),* unlike Techno, Huaiwei and Vodaphone.

[2] **Java** is a set of several computer software products and specifications that together provide a system for developing application software and deploying it in a cross-platform computing environment. Java is used in a wide range of computing platforms from embedded devices and mobile phones on the low end, to enterprise servers and supercomputers on the high end.

Table 2: Phone brands used by ADDO providers

Phone Brand	N	Percent	Cumulative Percentage
Nokia	54	54.0%	54.0%
Samsung	4	4.0%	58.0%
Huaiwei	3	3.0%	61.0%
Techno	27	27.0%	88.0%
Vodaphone	3	3.0%	91.0%
Others	9	9.0%	100.0%
Total	**100**	**100.0%**	

Table 3: Model of phones used by ADDO providers

Phone Model	Frequency	Percentage	Valid Percentage
Forme F9	1	1	1
Forme Mini, 5030, N78	1	1	1
Forme Mini, 5030, N79	1	1	1
Huawei, CE 0682	3	3	3
Kenxinda	1	1	1
Nokia 1110	7	7	7
Nokia 1200	8	8	8
Nokia 1209	4	4	4
Nokia 2100	1	1	1
Nokia 6080	1	1	1
Nokia C - Series	9	9	9
Nokia E88+	1	1	1
Nokia T 20	1	1	1
Nokia T 8i	1	1	1
Nokia, 1202	3	3	3
Nokia, 1202-2	2	2	2
Nokia, 1280	4	4	4
Nokia, 2280	2	2	2
Nokia, 2699	1	1	1
Nokia, 65005-1	1	1	1

Phone Model	Frequency	Percentage	Valid Percentage
Nokia, f369	2	2	2
Nokia, m86	2	2	2
Nokia, n8	2	2	2
Nokia, p1662	1	1	1
Nokia,m83	1	1	1
Samsung, GTE 1085F	1	1	1
Samsung, GT-53653	1	1	1
Samsung, GT-E10879	1	1	1
Samsung, Gt-S3100	1	1	1
SQDUOS, C3300	2	2	2
Techno BL-5c	1	1	1
Techno T-Series	26	26	26
Telestra – ZTE	2	2	2
TNM (built in battery)	1	1	1
Vodafone	3	3	3
Total	**100**	**100**	**100**

Table 4: Type of phones (brand and model) used by pharmaceutical wholesalers

Brand and Model Type	Frequency	Percent	Cumulative Percent
Blackberry	2	18.2	18.2
i-phone Samsung tab	1	9.1	27.3
Nokia C2	2	18.2	45.5
Nokia C3	1	9.1	54.5
Nokia E72	1	9.1	63.6
Nokia E72i	1	9.1	72.7
Samsung	1	9.1	81.8
Techno HD 30	1	9.1	90.9
Techno T30	1	9.1	100
Total	**11**	**100**	

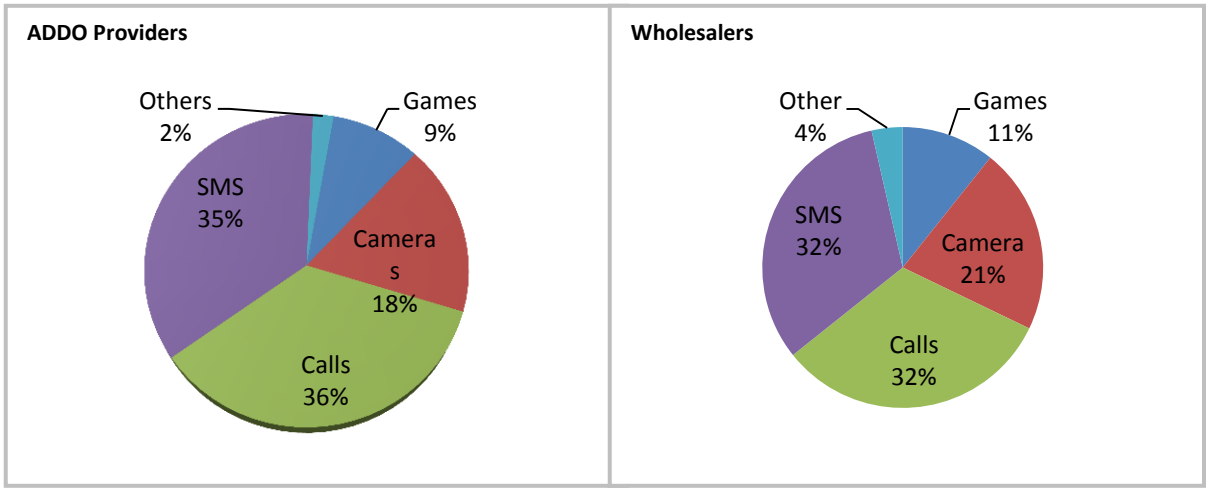
Table 3 and Table 4 above show that there are a variety of phone (by type and model) used by both ADDO providers and pharmaceutical wholesalers. The wholesalers tend to own phones that are more advanced in terms of functions, features and program compatibility, compared to the types and models owned by ADDO providers. Smart phone can support several services and functions compared with other ubiquitous cell phones. The observed ownership pattern reflects the scenario in the mobile phone market whereby smart phones are relatively fewer than other mobile phones in the market. Nonetheless, some of Nokia phones, for instance Nokia N and C- series can support a number of functions performed by smart phones.

On the other hand, Techno T-series phones were mostly found in ADDOs, accounting for 26% of all phones owned by the providers. However, the type or model of a phone does not necessarily determine it usability for mHealth. What matters most is the application which the mHealth platform uses/requires. For example, all the phones found in ADDOs and wholesale shops can support mHealth platforms which mainly use SMS and Unstructured Supplementary Services Data (USSD) applications. For JAVA applications, a smart phone or any other type that support such applications will be needed. Such phones range from USD100 and could be affordable to most ADDO providers so long as they can clearly see the benefit of using them. However, their availability in rural areas could be a challenge.

3.3.2 Commonly Used Mobile Phone Features/Functions

Traditionally mobile phones are equipped with a number of functions depending on the operating systems installed in the phone. Most mobile phones possess the basic functions like SMS and calls. Some are equipped with camera, radio, e-mail, games, packet switching for Internet access, Infrared and/or Bluetooth, camcorder (camera with video recorder) MP3 player, MMS (multimedia messaging service) for transmitting and obtaining video and photos and GPS (Global Positioning System). The study showed that only a few of these functions are being used by ADDO providers and wholesalers, as shown in see *Figure 1* below. Most of the phone functions can be used together.

Figure 1: Phone features/functions commonly used by ADDO providers and wholesalers



The data from ADDOs show that call are the most used phone functions by 36% of the providers, followed by SMS (35%), camera (18%) and gaming 9%. Other functions account for the remaining 2%. A similar trend was observed among wholesalers, with calls and MSS emerging as the most used functions (32%) followed by camera (21%) and games (11%). The limited usage of a variety of phone functions could be attributed to the types of phones used by the respondents, inadequate knowledge on how to use other existing functions or just lack of interest in other functions.

3.3.3 Use of mobile phones in routine operations of ADDOs and wholesale shops

With respect to voice and SMS services, mobile phones are capable of automatic redial, last number recall, recording caller ID, logging on incoming and outgoing calls, speed dialing, sending and receiving text massages, etc. The study showed that all wholesalers (100%) and 90% of ADDO providers use mobile phones in day to day business operations. The remaining 10% of ADDO providers had little knowledge on how to use mobile phone to conduct business operations. Table 5 and Table 6 below show operational activities conducted by ADDO providers and wholesalers through mobile phone.

Table 5: ADDO activities conducted through mobile phone

Operational Activities	Frequency	Percent
Communication with drug shop owners, dispensers and clients	31	31
Coordination with vertical programs such as malaria, and getting information on training activities	2	2
Providing clients with information about product (e.g. usage, dosage and price)	9	9
Ordering drugs, sharing information with colleagues and making payment	28	29
N/A	12	12
Total	**100**	**100**

Table 6: Wholesaler operational activities conducted through mobile phone

Operational Activities	Frequency	Percent
Collecting orders, requesting and providing price information and seeking product information	6	63.7
Ordering drugs, requesting price information from suppliers, providing and sending price information to clients	1	9.1
Making payments	1	9.1
Receiving and providing price information to clients through SMS and voice calls	1	9.1
Total	**11**	**100**

The above findings show that there are many business functions which ADDOs and pharmaceutical wholesalers can conduct through a mobile phone. The study further indicated that pharmaceutical wholesalers are better equipped for ICT use than ADDOs. About 82% of the wholesalers had at least a computer and were mainly using them for electronic stock management. However, only 13% of the computers were connected to the Internet. Among the Internet uses mentioned, were product information search and communication with clients and suppliers.

3.3.4 Availability and Reach of Mobile Network Operators

Tanzania has about 11 mobile network operators licensed by TCRA to provide mobile communication services[3]. These operators provide number of services including calls, SMS, mobile money and Internet access, among others. Experience has shown that most of these mobile networks are more accessible in urban than rural areas. Table 5 shows the available mobile phone networks in the study area.

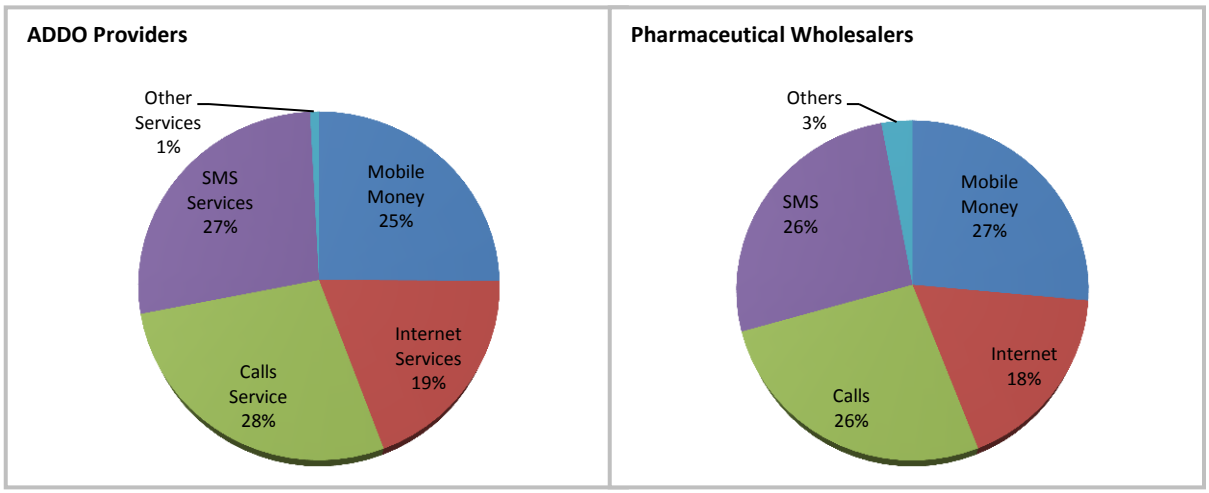
[3] TCRA S, 2012

Table 7: Reach of mobile phone networks to ADDOs

Mobile network available	N=Yes	%	N= No	%
Tigo	83	83%	17	17%
Vodacom	97	97%	3	3%
Airtel	97	97%	3	3%
Zantel	64	64%	36	36%
Other operators	1	1%	99	99%

Distribution of services provided by the different networks shows that calls, SMS and mMoney are the most popular services among ADDO providers, rated at 28%, 27% and 25% respectively. A similar trend was observed among wholesalers (see *Figure 2* below). Interestingly, 18% of ADDO providers and 19% of wholesalers mentioned using internet services such as surfing e-mailing and blogging. This is significant for integration of mobile phone communication with internet-based services.

Figure 2: Mobile operators' services to ADDO providers and pharmaceutical wholesalers



3.3.5 Perceptions of ADDO Providers and Pharmaceutical Wholesalers about Mobile Phone as a Business Tool

The study revealed that the mobile technology enjoys overwhelmingly favorable perception among ADDO providers and pharmaceutical wholesalers, with 99% of ADDO providers describing the technology as a useful invention. About 75% of the providers believe that the technology has the potential to improve their businesses, and should therefore be prioritized. Tables 8 and 9 below highlight some of the perceptions and professed benefits of the technology among both groups.

Table 8: Perceptions of ADDO providers and pharmaceutical wholesalers on the mobile phone technology

Perception	Frequency	Percent	Cumulative %
ADDO Providers			
Is a good technology	54	54	54
Important technology	32	32	86
It is a useful invention	13	13	99
Not important	1	1	100
Total	**100**	**100**	
Wholesalers			
Good and acceptable	2	18.2	18.2
Useful and safe for communication	3	27.3	45.5
It good idea and simple	2	18.2	63.7
Positive, it makes communication easier and simplifies work	1	9.1	72.8
Very good and helpful in business operations	1	9.1	81.9
N/A	2	18.1	100
Total	**11**	**100**	

Table 9: Benefits of using mobile phone as a business tool

Benefits	Frequency	Percent
ADDOS Provider		
Saves time, provides education and product information	44	44
Improves ADDO management and ordering of medicine	30	30
Facilitates sending reports, calling , sending SMS and money transfers	16	16
Improves the referral system	10	10
Total	**100**	**100**
Wholesalers		
Saves time and reduces cost of doing business	4	36.4
Reduces risks of money loss (mMoney) and make transactions easy	1	9.1
Makes communication with customers easy and improves rations/business	1	9.1
Simplifies work and makes communication easy	1	9.1
Makes it easier to send reports, conduct transactions and learn more about products	1	9.1
N/A	3	27.3
Total	**11**	**100**

3.3.6 Cost Recovery of Mobile Technology Use

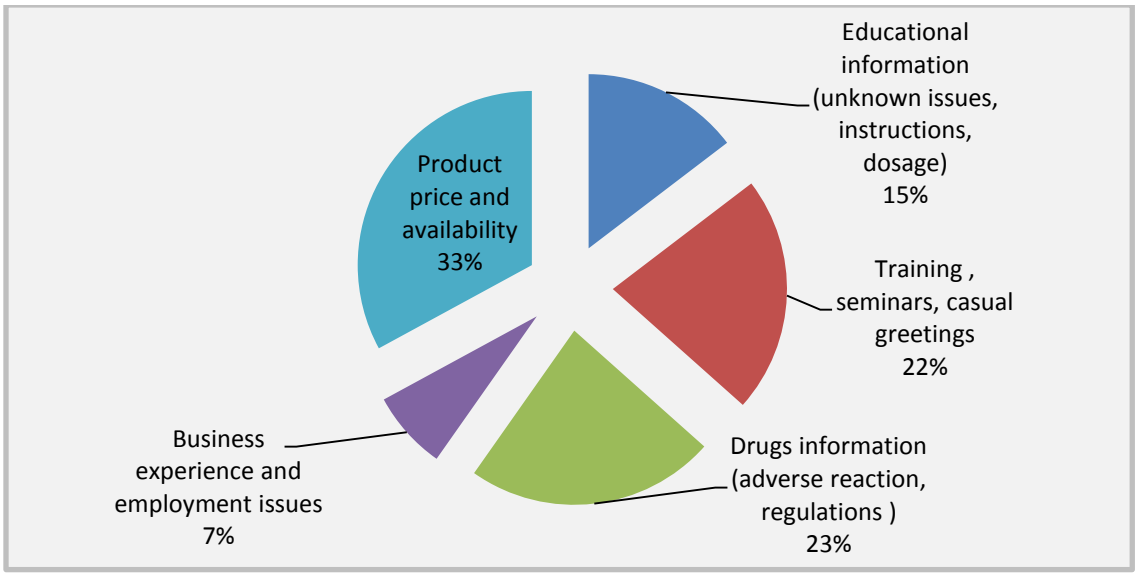
Cost recovery is a revenue recognition method under which no gross profit is recognized until all costs incurred in an operation have been recovered. Majority of the ADDO operators (95%) believed that it is possible to recover the costs of using mobile technology from the resultant business gains. About 80% indicated willingness to invest more in use of the technology to improve business operations, if the cost does not exceed TZS 100,000/=. On the other hand, all wholesalers were confident to recover the cost of using mobile phone for business purposes. However, the perceived costs, in this case are mainly user charges on voice calls and SMS, not implied costs such as the cost of buying a handset.

The perceived cost recovery, especially among ADDO providers, was mainly associated with reduced expenditures on transport to purchase stocks from distant wholesalers, and improved business resulting from informed decision-making since relevant information on products (availability, pricing, traceability and even reactions) as well as the market environment, can be easily accessed through the mobile phone.

3.3.7 Using Mobile Phone for Information Sharing Among ADDO Providers

The mobile technology has the potential of improving ADDO services through information sharing. It bridges the gap between people in different geographic locations by making communication easy. The study revealed that some ADDO providers are already making good use of the technology to share information aimed improving quality of services and enhancing business potential of the drug shops. It was learnt that about 33% of the providers share information about product price and availability, 23% on technical product information (usage, dosage, reactions etc.), and 22% on training opportunities including seminars and workshops. Some even mentioned sharing information on dispensing practices (15%), while 8% reported sharing business experiences and employment issues (see figure 3 below). This level of engagement through the mobile phone provides a good basis for promoting use of the technology in a more structured manner to improve delivery of ADDO services.

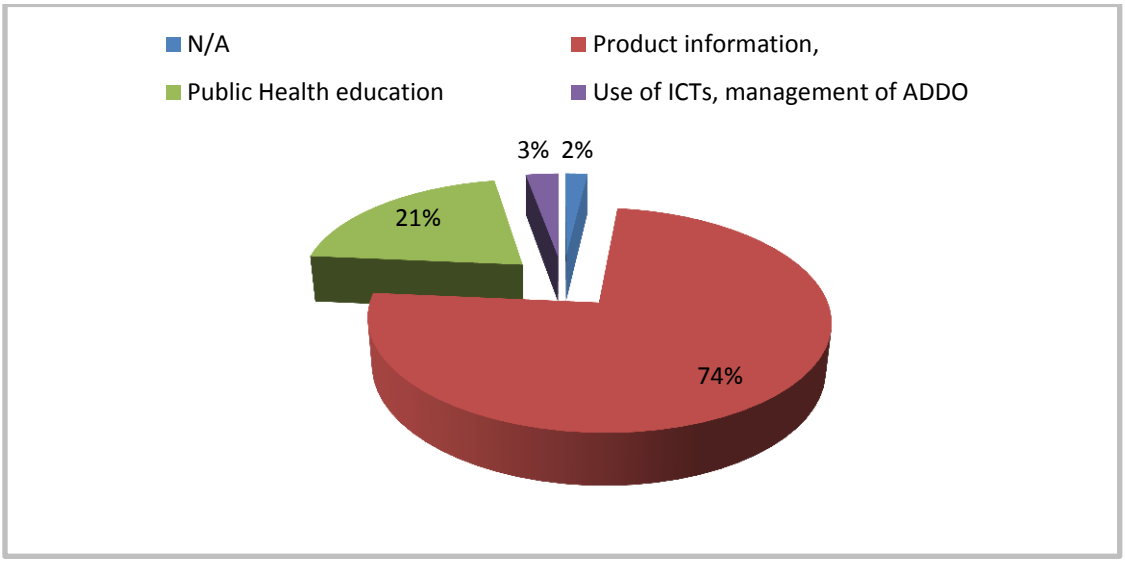
Figure 3: Type of information ADDO providers share through mobile phones



3.3.8 Using the Mobile Phone Technology for Educational Purposes

Mobile phones can be handy tools for information, education, communication and even entertainment. However, usability of the technology for educational purposes largely depends on the features/ functions of the phone being used especially for Internet access; network strength/reliability; and the user's literacy, interest, capacity to learn and ability to pay for the services. The study revealed that 98% of ADDO providers would be interested in using the phone for educational purposes.

Figure 4: ADDOs providers interested in learning through mobile phones



About 74% of the ADDO providers said they would be interested in learning more about new products (e.g. availability, usage, dosage, efficacy, reactions, etc.), 21% about public health issues especially reproductive and child health services, 3% on ICT use in ADDO management, and the remaining 2% did not mention anything in particular that they would like to learn through mobile phone. However, the findings generally demonstrate feasibility of using the technology for educational purposes.

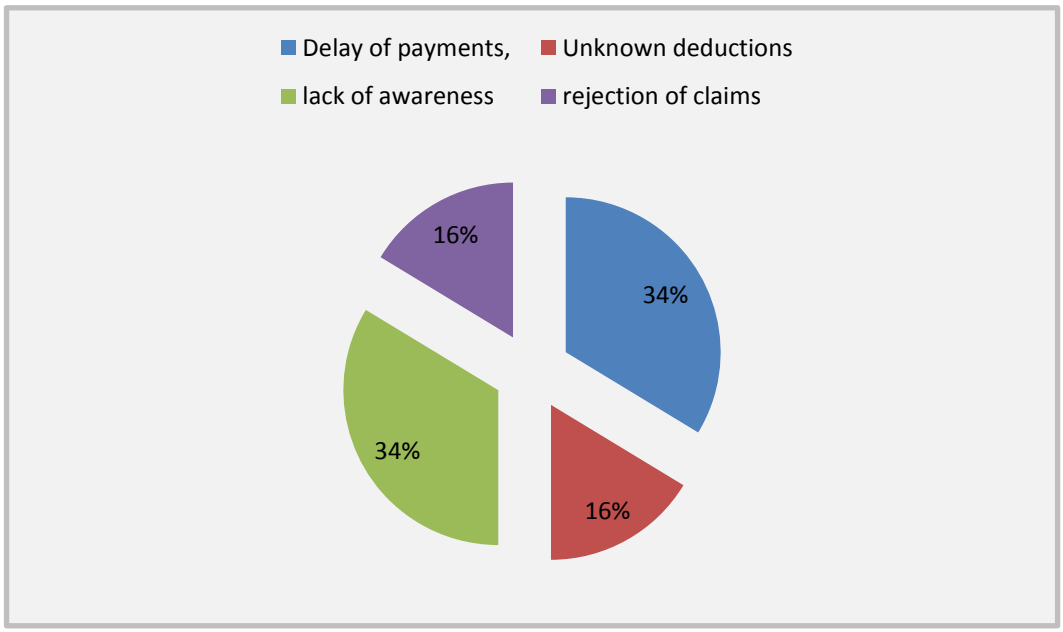
3.3.9 Using Mobile Technology to Improve NHIF-ADDO Relations and Services

The National Health Insurance Fund (NHIF) is a statutory health insurance scheme established in 1999 by an Act of Parliament. The aim of the scheme is to facilitate access to health services by the principal members of the scheme and their dependents, through a wide network of accredited quality health facilities throughout Tanzania. ADDDOs are among the facilities NHIF accredits to promote access to healthcare services by its members. However, not so many ADDOs have been keen to join the scheme due to various operational challenges. For example, out 75 ADDOs which participated in the study, only 6% had enrolled in the NHIF scheme.

Among the challenges holding back ADDOs from registering with NHIF are unfavorable pricing of medicines sold by ADDOs to NHIF members, many ADDOs claim NHIF prices are not reviewed frequently to reflect prevailing market price; delays in reimbursements (NHIF only considers claims ranging from Tsh.100,000, which is a major challenge to ADDOs with small turnover /slow capital rotation); unfavorable payment system (all payments are made by check to be collected from NHIF regional office); payment disputes resulting from inadequate adherence to the agreed scope of ADDO services;

and difficult communication and follow-up with NHIF due to inadequate decentralization of its functions. Among the challenges cited by ADDO providers in the study area were: delayed payment (34%), lack of awareness of among eligible users about ADDOs accredited by NHIF (34%), rejection of claims (16%) and unknown deductions (16%).

Figure 5: Challenges related to NHIF enrollment



Since most ADDO providers have mobile phones and the majority uses them for business purposes, some of the above-mentioned operational challenges could be addressed through mobile phone use. For example, NHIF could update ADDO providers about status of payment through a simple SMS alert so that the providers do not have to travel long distances to follow up payment; information about accredited ADDOs could also be disseminated to NHIF members through messages; and claims by ADDOs also settled through mobile phones (mMoney). Even though the government has not adopted m-Money as a system for payment, this innovation could be explored to increase efficiency in making payments to ADDOs, reduce cost of follow-up and collection of payment by the ADDO providers, allow reimbursement of much smaller amounts to the providers, and reduce administrative costs to NHIF.

3.3.10 Using Mobile Phones in Procurement of Supplies

Supplies management is one of the critical functions of the ADDO enterprise. The study found out that ADDO providers mainly get stocks by placing orders with wholesalers for scheduled delivery, or visiting the wholesaler's shop for direct purchase over the counter. About 63% of ADDO providers said they use

both methods, 30% visit wholesalers to make purchases, and 7% place orders with the suppliers (see figure 7 blow). On the other hand, 90% of wholesalers said they use the ordering system while the remaining 10% visit their suppliers to purchase products. Of the wholesalers who use the ordering system, 18.2% mentioned using mobile phone to place orders. Furthermore, the wholesalers mentioned that 50% of their clients order for supplies through physical visits, 39% though mobile phone, 6% by e-mail and 5% by fax (*see figure 8 below*).

Figure 6: Procurement methods used by ADDO providers

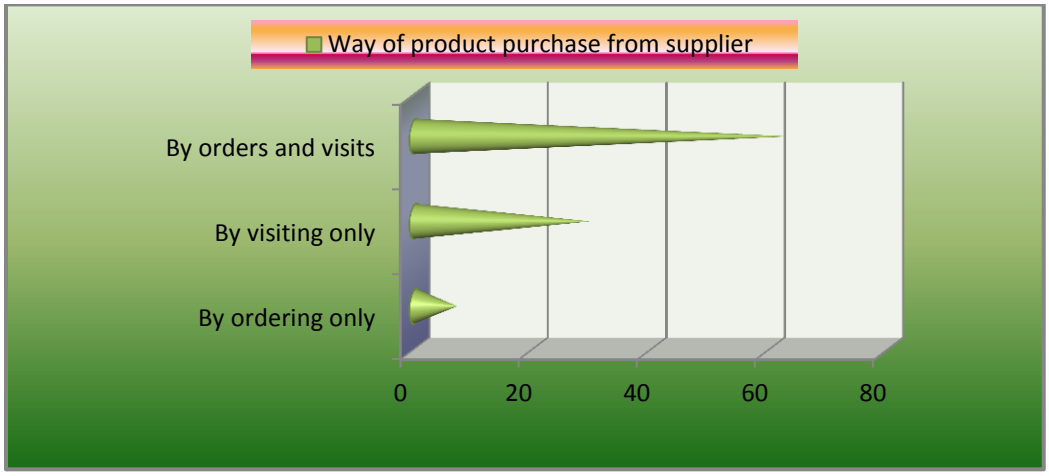
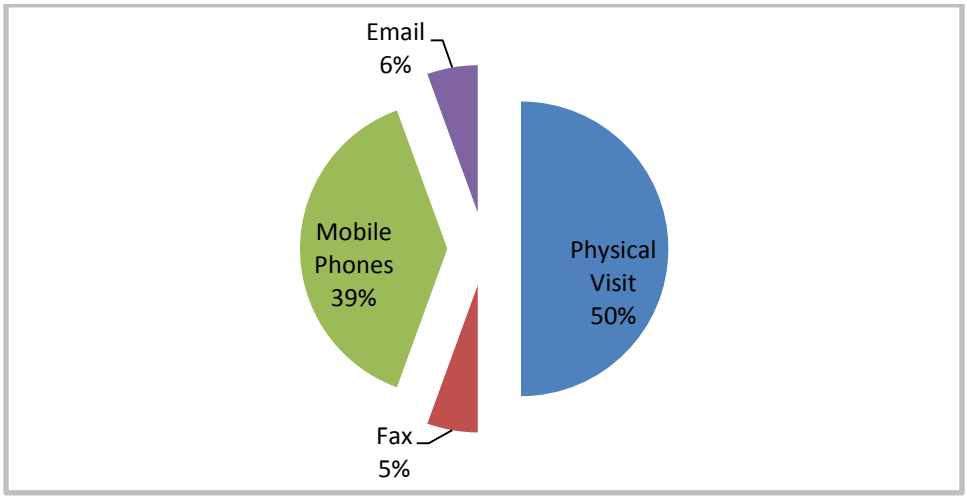


Figure 7: Procurement methods used by pharmaceutical wholesalers



Though the ordering system is significantly popular, there are a number of challenges associated with the system such as mistakes in packing goods, mishandling and theft during transportation, delays in delivery, and supply of products which are nearing expiry date. Some of these challenges could be addressed my making the necessary follow-up through mobile phone e.g. calling to confirmed that a

consignment has left the supplier's shop, talking to the transporter to monitor movement of the consignment, calling the suppliers to confirm arrival of the consignment and letting the supplier know of the condition of goods upon arrival.

Wholesalers were asked how they obtain product information prior to placement of orders. Among the answers given were provision of price list during purchasing visit to the supplier, word of mouth during visit by pharmaceutical representative, and use of mobile phone to share price information. Examples of pharmaceutical wholesalers who use mobile phones to disseminate product information to their clients include Rhode Pharmacy, Salama Pharmacy Limited and Heko Pharmaceuticals.

(a) Methods of Payment Used in Procurement of Supplies

Figure 8 below shows that the majority of ADDO providers (98%) purchase stocks from wholesales using hard cash while the remaining 2% pay through bank transfers. However, when wholesalers were asked how their clients pay for supplies, only 45% mentioned cash over the counter, 35% mobile money, 10% by check and another 10% through bank transfer.

Figure 8: Payment methods used by ADDO providers in procurement of supplies

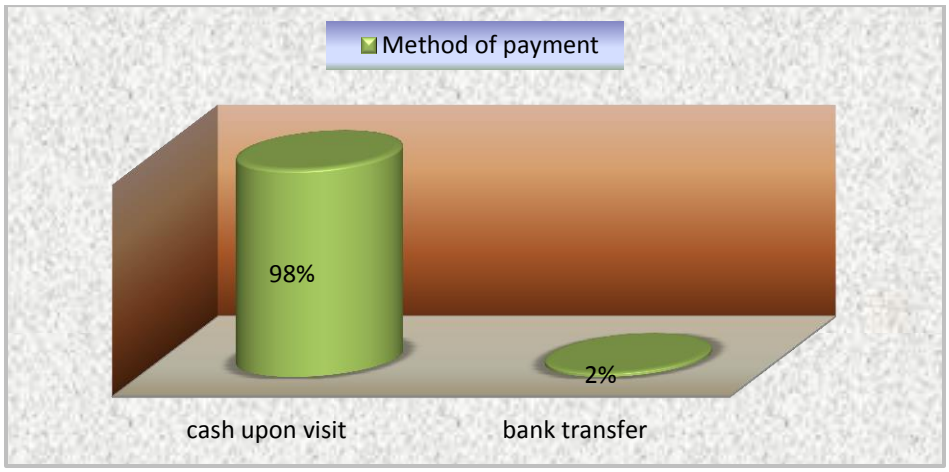
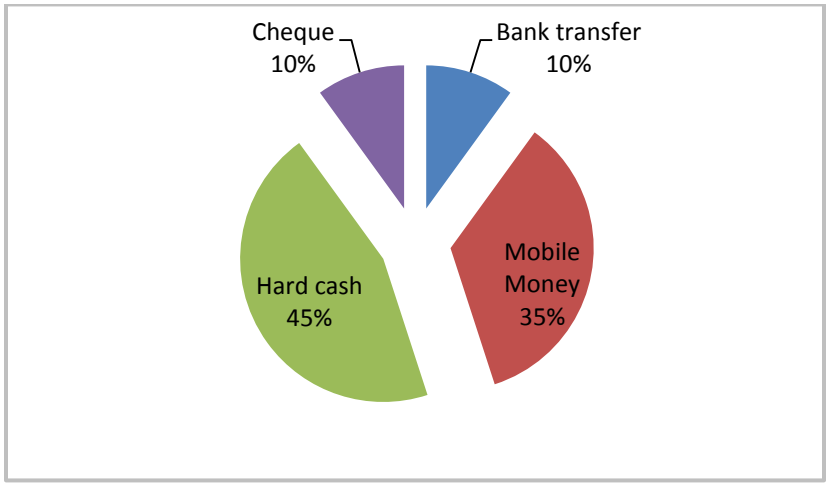


Figure 9: How pharmaceutical wholesalers' customers pay for stocks



It was learnt that most suppliers prefer cash payment because they consider it the most reliable and convenient method. On the other hand, ADDO providers mentioned that at times the transactions are so small that it is not necessary to do a bank transfer or write a check. While the convenience of payment by cash cannot be gainsaid, its risks cannot be ignored either. Cash can easily be lost, stolen or robbed. Moving around with large sums of money could also expose the handlers to security risks.
In the midst of these challenges, the mMoney innovation offers a more convenient, secure, reliable and efficient means to cash transfer right from the fingertips of the senders. Promoting use of the technology in ADDO operations will therefore go a long away to improve business practices of the ADDO providers.

(b) Wholesalers Knowledge of Mobile Money Payment Systems

The study showed that all wholesalers are knowledgeable and skilled enough to use mobile money payment systems. About 87.5% of the wholesalers are already using the systems in business transactions. However, certain concerns were raised regarding functionality of the m-Money services, such as possibility of sending money to a wrong person especially when dealing with many clients, delayed transactions due to network problems, and possibilities of fraud since the system is susceptible to fraud.

3.3.11 Use of Mobile Technology in Managing ADDO Referral Cases

It was also learnt from the study that about 92% of ADDOs refer patients needing referral care to the nearest health facility. Those who did not give any referrals said they had not received clients with such needs. However, about 68% of the referrals were verbally made and could not be verified due to lack of records. Shortage of referral forms was cited as the main reason for the verbal referrals. Only 34% of the

ADDOs reported receiving counter-referral forms from health facilities. The majority of respondents were of the opinion that effective use of mobile phone can be help to improve referral care even when referral forms are lacking.

3.3.12 Use of Mobile Technology in Product Quality Check

Physical appearance (color), expiry date, batch number and physical state of medicine (liquid, powder, or solid form) are some the basic product attributes which ADDO providers rely on to determine the product quality. About 36% of ADDO dispensers who participated in the study said they have ever received medicines of questionable quality. About 46% said they would report such cases to higher authorities, and 54% to the drug shop owner and supplier. More reliable information about products can be made accessible to the ADDO providers through mobile phones.

3.3.13 ADDO Activities Which Can Be Realized Through Mobile Technology Use

The study showed that there are many ADDO activities which can be carried out through mobile phone communication. Such activities include reporting and information sharing, educational services, reimbursement by insurance schemes, product information search, ordering of supplies, making payments, referral management, supervision and general business management. Figures 10 and 11 below highlight some of the activities which ADDO providers and wholesalers thought could be carried out through mobile phone.

Figure 10: ADDOs activities which can be realized through mobile phone use

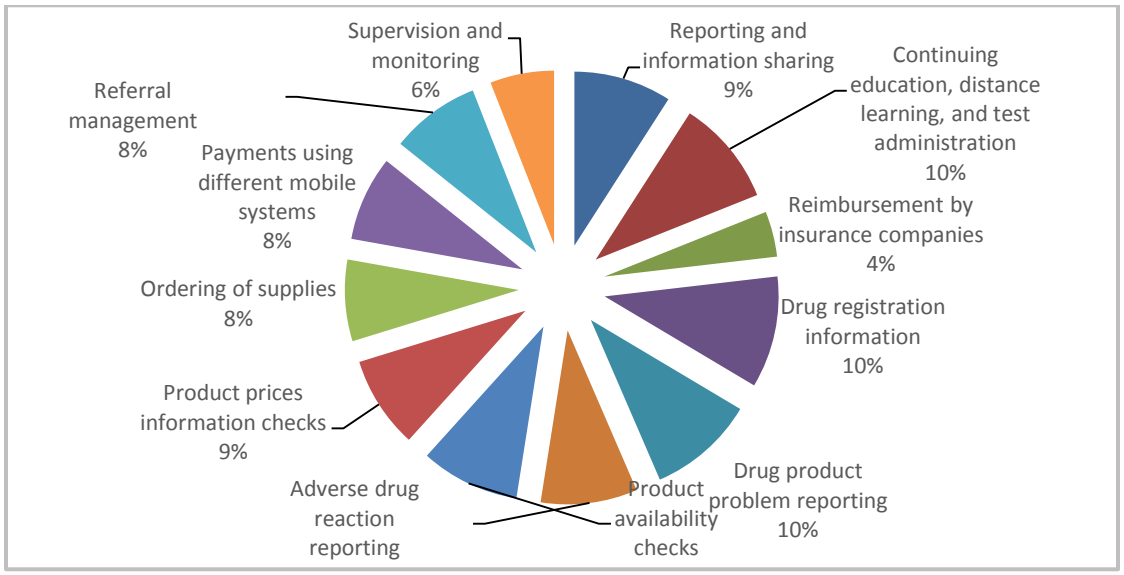
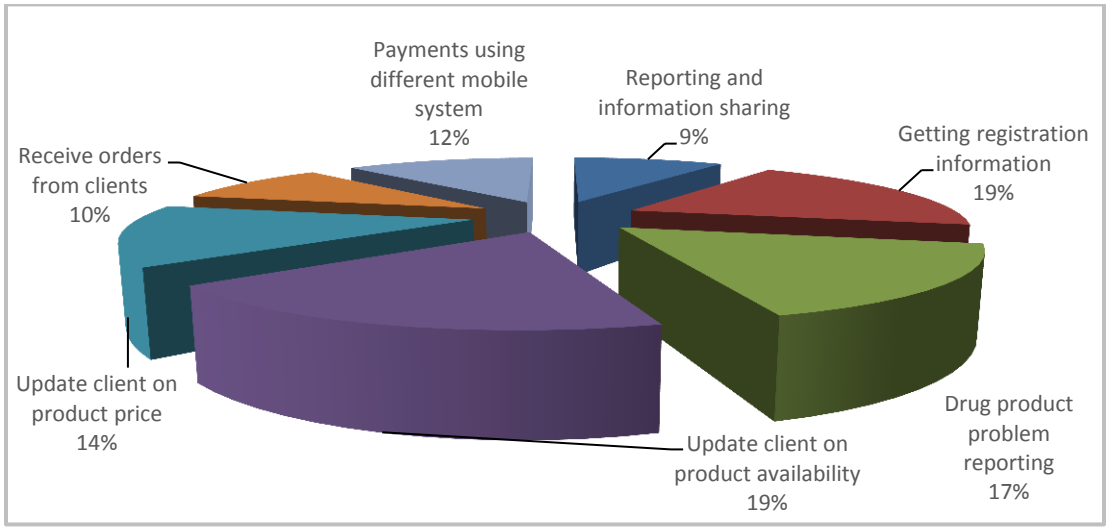


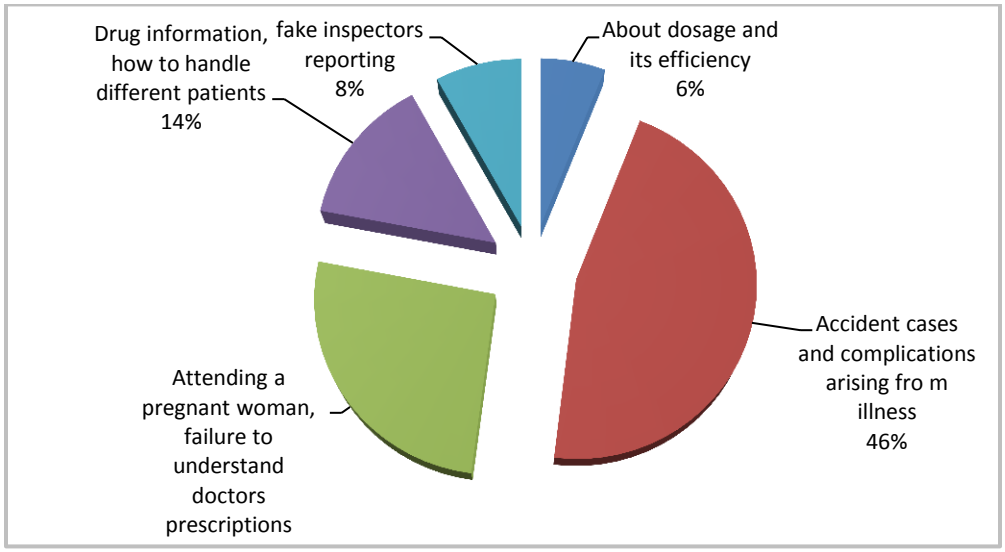
Figure 11: Wholesalers' activities which can be realized through mobile phone use



3.3.12 Use of Mobile Technology in Providing Technical Assistance to ADDO Providers

Continuous technical support to ADDO providers through follow up, supportive supervision and even consultations on emerging issues is critical for sustainable delivery of quality services by ADDOs. About 49% of ADDO dispensers mentioned that they have ever come across dispensing issues which needed clarifications or consultation with regulatory authorities and/or other technical experts. Figure 11 below highlights some of the issues. Consequently all the dispensers (100%) supported a suggestion that a helpline should be established to enable them get the necessary technical assistance on emerging operational issues. About 93% of the providers indicated that they would be willing to pay such services if need be.

Figure 12: ADDO operational issues requiring technical assistance



3.3.14 Challenges of Using Mobile Technology in ADDO and Wholesaler Operations

Despite willingness of ADDO providers and pharmaceutical wholesalers to adopt mobile technology use in their business operations, both groups remained conscious of certain inherent challenges in the local context, such as unstable/unreliable network connectivity, high cost of mobile services, inadequate confidentiality and security, lack of power supply especially in rural areas and misuse of subscribers contact information. The study further identified inadequate ICT knowledge among the providers, and probability of losing phones after installing certain especial features (e.g. data collection software), as other potential challenges. Table 10 below highlights some of the challenges mentioned by the respondents.

Table 10: Challenges of using mobile phones in ADDO operations

Challenges	Frequency	Percent
Network problems and high cost of services	43	43
Security, confidentiality and power supply	42	41
May require training	13	13
Inappropriate use of contact information	1	1
Do not know	9	9
Total	**100**	**100**

3.4 SUMMARY OF FINDINGS

Table 11 below provides a summary of the study findings.

Table 11: Summary of findings

Focus Area	Findings
A. Situation of the Telecommunications Industry	
Economic and policy context	• The telecommunications industry is among the fastest growing sectors of Tanzania's economy. In 2009, the industry grew by 21.9%, up from 20.5% in 2008 and accounted for 2.1% of the country's GDP. • Activities of the industry are guided by a sound policy framework outlined in the National ICT Policy of 2003 and the National Telecommunications Policy of 1997; with the Ministry of Communications, Science and Technology as the custodian of the policies.
Legal and regulatory environment	• The industry is governed by an elaborate legal and regulatory framework which includes the Communications Act of 1993, Tanzania Broadcasting Services Act of 1993, Tanzania Communications Regulatory Authority Act of 2003, Fair Competition Act of 2003, the Universal Communications Service Access Act of 2006, and the Electronic and Postal Communications Act of 2010. • Telecommunications Regulatory Authority (TCRA) is the government agency responsible for regulating and licensing the postal, broadcast and communication industries.
The market scenario	• There are 11 mobile network operators registered by TCRA. Among the major players are Vodacom, Airtel, Tigo, TTCL-Mobile, Zantel-Mobile, Sasatel and Benson Informatics. The penetration level of theses operators on a national scale is only 30%, an indication that there is still room for growth. • It is estimated there are 17 million mobile phone users in Tanzania. However, a recent report by TCRA showed that there were 25,827,518 mobile phone subscribers by December 2011.Vodacom has the largest share of subscribers (45%), followed by Airtel (27%), Tigo (21 %), Zantel (6%), TTCL (1 %), Sasatel (0.02%) and Benson Informatics (0.01%). • Cost of mobile communication services are believed to be generally high compared to other countries in the East African region. Local on-network call charges range from Tsh.30 to Tsh.105 per minute and local off-network call charges from Tsh.150 to Tsh.231 per minute. Local short text messages service (SMS) charges range from Tsh.25 to Tsh.49 per message, while international SMS charges range from Tsh.70 to Tsh.120 per message.
Major challenges in industry	• Major challenges in the mobile communication industry are: limited reach of the mobile networks (overall penetration level is only 30%), unstable network coverage, lack of electricity especially in rural areas, inadequate privacy of some networks, and fraud on some mobile money (mMoney) platforms.
B. Use of the Mobile Phone Technology in Health Promotion	
mHealth Initiatives in Tanzania	• There are about 40 mobile health (mHealth) projects in Tanzania Mainland and Zanzibar. Most of the projects are still in pilot phases and have limited geographic reach. The projects mainly focus on reproductive and child health services, HIV and AIDS, and malaria. • Among the major mHealth projects which could linked to the ADDO program are: m4RH implemented by FHI360, "SMS for Life" by the National Malaria Control Program (NMCP), AMFm Electronic M&E System by Tanscott Associations under NMCP, and ILS Gateway by the JSI DELIVER project in partnership with the Ministry of Health and Social Welfare (MoHSM).
Collaboration and partnership in mHealth initiatives	• There are going efforts to promote coordination and collaboration between mHealth projects in Tanzania. This is best demonstrated by establish of the Tanzania mHealth Community of Practice, a national network bringing together organizations and groups supporting mHealth initiatives in Tanzania Mainland, under the leadership of MoHSW. The MoHSW has also appointed a national mHealth coordinator and developed an mHealth

Focus Area	Findings
	public private partnership (PPP) policy framework to promote collaboration between the public and private sectors in mHealth initiatives.
C. Availability and use of the Mobile Communication Technology in the ADDO Sector	
Availability of mobile phones in ADDOs and wholesale shops	• All ADDO providers (owners and dispensers) and pharmaceutical wholesalers (100%) who participated in the study had a mobile phone. • Wholesalers had relatively more advanced phones than ADDO providers. Unlike the ADDO providers, 27% of the wholesalers had smart phones such as Blackberry (Curve, Bold), Nokia (N90), iPhone (3, 4s) and Samsung, which are quite advanced and can perform several IT related functions. Most of the smart phones range from USD100 in the local market.
Commonly used mobile phone features/ functions	• Both ADDO providers and pharmaceutical wholesalers mainly use mobile phones to make voice calls and send short text messages. Among the ADDO providers, voice calls and SMS account for 36% and 35%, respectively, of all phone functions performed. A similar trend was observed among wholesalers, with voice calls and SMS accounting for 32% and 21%, respectively, of all performed phone functions.
Perceptions about mobile technology as a business tool	• The mobile phone technology enjoys an overwhelmingly positive perception among ADDO providers and their suppliers (wholesalers) as a business tool. About the 99% of ADDO provider described the technology as a useful innovation and 75% believed that it has the potential to improve their businesses.
Use of mobile phone in routine operations of ADDOs and wholesale shops	• All wholesalers (100%) and 90% of ADDO providers use mobile phones in day-to-day business activities. The study demonstrated that wholesalers generally better equipped for IT use that ADDO provider. About 82% of the wholesalers had a computer mainly used for electronic stock management. However, only 13% of the computers were connected to the Internet, leaving most of the wholesalers with mobile phone as the preferred means of communication.
Use in information sharing among ADDO providers	• ADDO providers also use mobile phones to share information among themselves. About 33% mentioned sharing information on product price and availability, 23% on technical product information (usage, dosage, reactions etc.), and 22% on training opportunities including seminars and workshops. Some even mentioned sharing information on dispensing practices (15%), while 8% reported sharing business experiences and employment issues.
Use in referral care for ADDO patients	• About 92% of ADDOs refer patients to the nearest health facility. However, 68% of the referrals are verbally made mainly due to shortage of referral forms. Only 34% of the ADDOs reported receiving counter-referral forms from health facilities. The majority of respondents were of the opinion that effective use of mobile phone can be help to improve referral care even where referral forms are lacking.
Use in providing technical assistance to dispensers	• About 49% of ADDO dispensers mentioned that they have ever come across dispensing issues which needed clarifications or consultation with regulatory authorities and/or other technical experts. Consequently all the dispensers (100%) supported establishment of a helpline to enable them get the necessary technical assistance on emerging issues through their mobile phones. About 93% of ADDO providers indicated willingness to pay for such services if need be.
Use in training and educational activities	• The study revealed that 98% of ADDO providers would be interested in using the phone for educational purposes, 74% of which would be interested in learning more about new products, 21% about public health issues especially reproductive and child health, and 3% on ICT use in ADDO management.
Use in procurement of supplies	• ADDO providers are yet to start using the mobile phone technology in procurement of supplies. About 63% of the ADDO provider purchase stock through ordering and physical visit to the supplier. The wholesalers confirmed that about half (50%) of their clients purchase stocks through physical visits. Ninety eight percent (98%) of ADDO providers pay

Focus Area	Findings
	for stocks using hard cash while the remaining 2% use bank transfers. None of the ADDO provides reported using the mobile money services to pay for stocks. Conversely, 87.5% of wholesalers reported using mMoney facilities in their business transactions.
Use in product quality check	• About 36% of ADDO dispensers who participated in the study said they have ever received medicines of questionable quality. About 46% said they would report such cases to higher authorities, and 54% to the drug shop owner and suppliers. The majority acknowledge the importance of mobile phones in reporting such cases and accessing product information.
Use of mobile phone to improve ADDO/NHIF services	• Only 6% of ADDOs in the study area were accredited by NHIF. Some of the challenges cited by the ADDOs were delayed payment (34%), lack of awareness of among eligible users about ADDOs accredited by NHIF (34%), rejection of claims (16%) and unknown deductions (16%). The majority were of view the mobile phone technology can be helpful in addressing some of the issue. For example NHIF could SMS to inform its members about ADDO services and alert ADDO providers of ready payment. NHIF could also use the mMoney services to pay ADDOs so that they do not have to wait until their claims reach Tsh.100 before being paid by check or traveling all the way to NHIF regional headquarters to collect payment. On the other hand ADDO providers can also use mobile phones to follow up payments and forward complaints to the fund.
Feasibility and cost recovery of mobile phone use	• In terms of feasibility and cost recovery from mobile phone use, all wholesalers (100%) and 95% of ADDO providers stated that it is possible to recover the cost of using a mobile phone from the resultant business gains. About 80% of ADDO provider expressed willingness to invest more in mobile phone use in business operations, if the cost does not exceed Tsh.100,000.

4. RECOMMENDATIONS AND STRATEGIES FOR THE FUTURE

Based on the findings from the field survey, the study made a number of recommendations and outlined various strategies for integrating mobile technology in the ADDO program implementation. This section discusses the recommendations and strategies.

4.1 RECOMMENDATIONS

Recommendations from the study underscored the need for public private partnership in implementation of mHealth projects and use of mobile technologies that are compatible with the types of cell phones used by ADDO providers and their suppliers (wholesalers). The recommendations paid particular attention to various areas in which the mobile technical could be used to improve ADDO operations and services. The intervention areas include: procurement of supplies plus payment systems; communication with regulatory authorities; coordination and reporting; information sharing on different aspects of the program including product information; continuing education and technical support to ADDO providers ; registration systems and payment of regulatory fees; reimbursements of sales by health insurance companies; referral and counter referral of ADDO clients; integration of ADDO with other health programs through mHealth platforms; and linkage with financial institutions at local levels; among others. Based the these intervention areas, the study proposed establishment of a mobile information system that takes on board various operational needs of ADDO providers as well as mobile technologies and services available in the market.

4.1.1 Specific Recommendations

Table 10 below highlights the specific recommendations from the study.

Table 12: Recommendations from the study

SN	Recommendation
REC1	Promote public private partnership in implementation of mHealth initiatives
REC2	The mobile communication technology initiatives should go hand in hand with developing mobile based applications that are compatible with the types of phones being used by ADDOs and wholesalers.
REC3	A database of different levels of wholesalers (national, regional and district) should be developed and the necessary information about ADDO authorized medicines included to facilitate easy procurement of supplies by ADDO providers.
REC4	Mobile phone technologies should be integrated in the NHIF reimbursement mechanism to increase efficiency in filing of claims and effecting payment to ADDO providers using the mMoney services.
REC5	The fact that 97 percent of ADDOs and wholesalers are using only two mobile network providers (Vodacom and Airtel) justify the need to involve both operators in MHealth initiatives alongside other

SN	Recommendation
	players.
REC6	The willingness of ADDOs and wholesalers to cover mobile communication cost should be interpreted with respect to financial capacity as well as within the normal operational cost
REC7	An integrated ADDO mHealth initiative should involve parties dealing with medicines including retailers, wholesalers, regulatory bodies and local government authorities
REC8	A platform that provide a real time interaction between regulatory authorities and ADDOs should be established as part of the initiative to address regulatory issues like product registration, ADDO registration, counterfeited products, product quality
REC9	The fact that 93 percent of ADDOs call for help and the fact that 46 percent of ADDOs face cases that need consultation provide the bases for establishing a help line that should be able to address all technical issues pertaining drug dispensing.
REC10	Establishment of mMoney outlets should be promoted nationally to encourage widespread use of the technology in business transactions including ADDOs.
REC11	Integration of the mobile technologies in ADDO operations should focus on formalization of communication between ADDOs and suppliers, ADDOs and clients, ADDOs dispensers and owners
REC12	More knowledge on product quality check should be provided to ADDO dispensers to enable them to easily identify substandard products.
REC13	The use of mobile phone technologies should be promoted in ADDO as one of the practices that enhance sustainability.
REC14	The revenue collection system to be strengthened by introducing use of mobile money services such as M-PESA, Tigo Pesa, Airtel Money and Mobile banking, using the DAWASCO model.
REC15	Mobile phone technologies should be used to assist in the registration and maintenance of ADDO database.
REC16	Training and seminar materials/contents should be packaged in a way that they can be easily accessed by ADDO provider through mobile phones in different formats such text and multimedia.
REC17	Financial institutions to be linked to the ADDO program and mobile phone technologies deployed to make the process of loan application and repayment much easier to the ADDO providers.
REC18	Mobile phone technologies should be used to strengthen referral and counter referral system and improve communication between ADDO dispensers and health facilities.

4.1.2 Proposed ADDO Mobile Information System

The proposed ADDO mobile information system will be driven by an electronic database whose main function will be to receive and process information from different stakeholders and disseminate it using relevant applications (e.g. web, SMS, USSD). The database will consist of the following components:

- Detailed contact information of all ADDOs including owners and dispensers
- Detailed contact information about ADDO suppliers (wholesalers)
- ADDOs registrations/accreditation status
- Payment of regulatory fees including penalties

- Availability and pricing of ADDO products stocked by different by suppliers/ wholesalers
- Technical information about ADDO products (e.g. usage , dosage, reactions, price,
- ADDOs reporting system
- ADDO consultation/helpline
- Mobile payment systems

Table 13 below highlights some of the potential features of the database.

Table 13: ADDO mobile information system features, users and access

Features	User	Access	
		Web	Mobile
License fee	ADDO Owner, wholesaler.		√
Registration fee	ADDO Owner, ADDO Dispenser, Wholesaler.		√
Training fee	ADDO Owners, Wholesaler, ADDO Dispenser.		√
Reimbursement fee(insurance schemes & government)	ADDO Owner, Pharmacy Council, TFDA, Regional Pharmacist, District Pharmacist.	√	√
Drug order payment	ADDO Owner, Wholesaler, ADDO Dispenser		√
Retail(Buy, sales report, sales history)	ADDO Owner, Consumer, ADDO Dispenser.	√	√
Association fee	ADDO Owner, ADDO Dispenser.		√
Apply loan	ADDO Owner, Wholesalers, ADDO Dispenser, Microfinance Institutions (MFI).	√	√
Pay loan	ADDO Owner, Wholesaler, ADDO Dispenser, MFI.		√
Monthly reports	ADDO Owner, Wholesalers, Insurance, Pharmacy Council, TFDA, Regional Pharmacist, District Pharmacist, ADDO Dispenser.		√
Adverse drug reaction	ADDO Owner, Wholesalers, Pharmacy Council, TFDA, Consumer, Regional Pharmacist, District Pharmacist, Community Leaders, ADDO Dispenser.		√
Dispenser list	Pharmacy Council, TFDA, Regional Pharmacist, District Pharmacist.	√	√
ADDO list	Pharmacy Council, TFDA, Regional Pharmacist, District Pharmacist.	√	√
Regulatory issue & Standards	ADDO Owner, Wholesaler, Insurance, Pharmacy Council, TFDA, Consumer, Regional Pharmacist, District Pharmacist, Community Leaders, ADDO Dispenser.		√
New Drug information	ADDO Owner, Wholesalers, Insurance, Pharmacy Council,		√

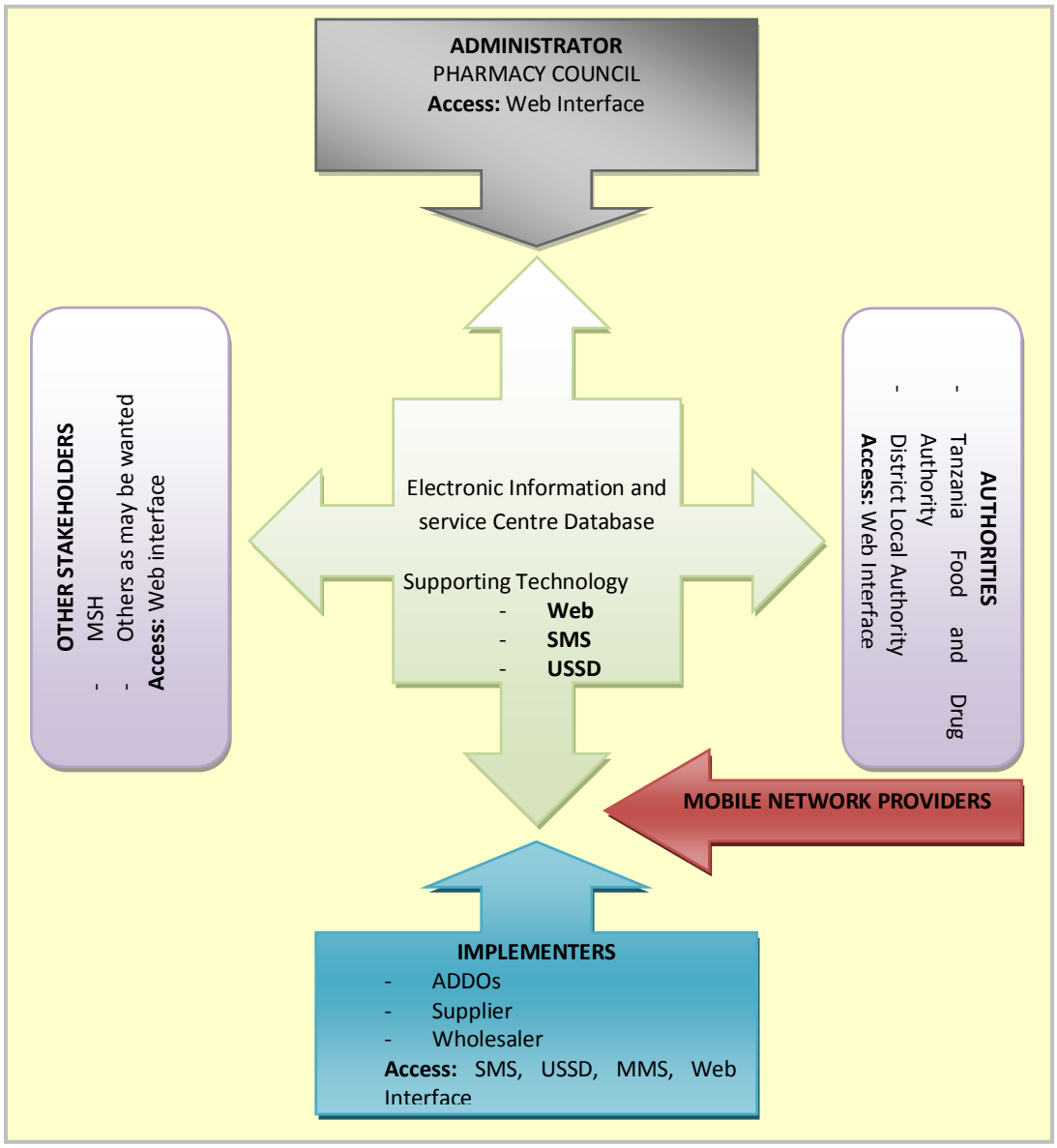
Features	User	Access	
		Web	Mobile
	TFDA, Consumer, Regional Pharmacist, District Pharmacist, Community Leaders, ADDO Dispenser.		
Training and seminar	ADDO Owner, Wholesalers,, Pharmacy Council, TFDA, Regional Pharmacist, District Pharmacist, ADDO Dispenser.	√	√
ADDO services quality	Pharmacy Council, TFDA, Consumer, Regional Pharmacist, District Pharmacist, Community Leaders, ADDO Dispenser.		√
ADDO registration	Insurance, Pharmacy Council, TFDA, Regional Pharmacist, District Pharmacist, Community Leaders,.	√	√
ADDO registration status	Insurance, Pharmacy Council, TFDA, Regional Pharmacist, District Pharmacist, Community Leaders,	√	√
Financial facilities	ADDO Owner, Wholesalers, ADDO Dispenser.	√	√
ADDO association Issues	ADDO Owner, Wholesalers, Pharmacy Council, TFDA, Regional Pharmacist, District Pharmacist, ADDO Dispenser.		√
Drug registration issues	ADDO Owner, Wholesalers, Pharmacy Council, TFDA, Consumer, Regional Pharmacist, District Pharmacist, Community Leaders, ADDO Dispenser.		√
Drug availability information	ADDO Owner, Wholesalers, Whole Sellers, ADDO Dispenser.		√
Drug usage	ADDO Owner, Wholesalers, Pharmacy Council, TFDA, Consumer, Regional Pharmacist, District Pharmacist, Community Leaders, ADDO Dispenser.		√
Personnel Registration	ADDO Owner, Pharmacy Council, TFDA, Consumer, Regional Pharmacist, District Pharmacist.	√	√
Personnel Registration Status	ADDO Owner, Pharmacy Council, TFDA, Consumer, Regional Pharmacist, District Pharmacist.	√	√
Insurance Claims	ADDO Owner, Wholesaler, Insurance, ADDO Dispenser,	√	√
Insurance ADDO Registration	ADDO Owner, Wholesaler, Insurance, ADDO Dispenser,	√	√
ADDO License Control	Pharmacy Council, TFDA, Regional Pharmacist, District Pharmacist, Community Leaders.	√	√
Community Drug Counterfeit Control	ADDO Owner, Wholesaler, Consumer, Community Leaders, ADDO Dispenser, Health Facility workers	√	√
Check product availability	ADDO Owner, ADDO Dispenser.		√
Product price	ADDO Owner, ADDO Dispenser.		√
Order	Whole Sellers, ADDO Owner, ADDO Dispenser.		√
Check status	ADDO Owner, ADDO Dispenser.		√
Patient Drug registration	ADDO Owner, Health Facility Workers, ADDO Dispenser.	√	√

Features	User	Access	
		Web	Mobile
Referrals	ADDO Owner, Health Facility Workers, ADDO Dispenser.	√	√
Drug Counterfeit reporting	ADDO Owner, Wholesaler, Pharmacy Council, TFDA, Consumer, Regional Pharmacist, District Pharmacist, Community Leaders, ADDO Dispenser, Health Facility worker.	√	√
Emergency reporting	ADDO Owner, Wholesaler, Pharmacy Council, TFDA, Regional Pharmacist, District Pharmacist, Community Leaders, ADDO Dispenser, Health Facility Worker.	√	√
Consultation	ADDO Owner, Wholesaler, Pharmacy Council, TFDA, Regional Pharmacist, District Pharmacist, Community Leaders, ADDO Dispenser, Health Facility Worker.		√
Check product quality description	ADDO Owner, Wholesaler, Insurance, Pharmacy Council, TFDA, Consumer, Regional Pharmacist, District Pharmacist, Community Leaders, ADDO Dispenser.		√
Product quality Reporting	ADDO Owner, Wholesaler, Insurance, Pharmacy Council, TFDA, Consumer, Regional Pharmacist, District Pharmacist, Community Leaders, ADDO Dispenser.	√	√
Due payments	ADDO Owner, Wholesaler, Insurance, Pharmacy Council, TFDA, Consumer, Regional Pharmacist, District Pharmacist, Community Leaders, ADDO Dispenser.	√	√
Renewals	ADDO Owner, Wholesaler, Insurance, Pharmacy Council, TFDA, Regional Pharmacist, District Pharmacist, Community Leaders, ADDO Dispenser.	√	√
Seminars	ADDO Owner, Wholesaler, Insurance, Pharmacy Council, TFDA, Regional Pharmacist, District Pharmacist, Community Leaders, ADDO Dispenser.	√	√

(c) Management of the System

Management of the systems will involve five different groups of stakeholders namely system administrator, system implementers, mobile network providers, regulatory authorities and other stakeholders. All the stakeholders will be linked through an electronic information and service center database, as illustrated in *Figure 13* below.

Figure 13: Management of the ADDO mobile information system



The following are the proposed roles of different stakeholders in operating the system:

- The System Administrator (Pharmacy Council) will be responsible for monitoring the system and providing access to all other users of the system. Thus, the administrator will determine who uses the system and the type of information to be accessed by and authorized user. The administrator will also be allowed to edit, modify or delete information from the system. The administrator will be custodian of the system.

- Implementers (ADDOs, Suppliers and Wholesalers) will be responsible for feeding the system with information/data as recommended. They will be allowed to access any information from the system as authorized by the administrator and use its payment systems.
- Government Authorities and Other Partners will also be responsible for providing the system with the necessary information based on their involvement in the ADDO program, and will in turn have access to reports generated by the system to facilitate planning and implementation of different interventions at the national and local levels.
- Mobile Network Providers will be responsible for providing technological paths ways (e.g. SMS, USSD) to link the system with the implementers (ADDOs, wholesalers and other suppliers).

4.2 INSTITUTIONALIZING MOBILE COMMUNICATION TECHNOLOGIES IN THE ADDO SYSTEM: STRATEGIES FOR THE FUTURE

One of the expected outputs from the study was a strategy for integrating mobile communication technologies in the ADDO program, with a view of strengthening operations of ADDOs both technically and commercially, improving coordination and reporting, facilitating monitoring and evaluation processes, and improving the quality of ADDO services. It is envisaged that institutionalizing mobile communication technologies in the ADDO system will go a long way to enhance long term sustainability of the program.

Based on this understanding, as well as findings and recommendations from the field survey, the study came up with the following five major strategies to help operationalize the proposed ADDO mobile information system and institutionalize use of the technologies in implementation of the program:

- **Strategy 1:** Establishing mCommerce System that will integrate different payment needs of ADDO providers, wholesalers and regulatory authorities. This will include licensing, registration, training and reimbursements (by government and insurance schemes), drug order payments, retail reports, association fee, loan application and loan repayment.
- **Strategy 2:** Establishing an Electronic Information Services System that will provide information on ADDO monthly reports, adverse drug reactions, list of ADDOs and dispensers, regulatory issues and standards, and drug information among others.
- **Strategy 3:** Establishing an Electronic Logistic Management System that will address the issues of product availability, product stock status and drug orders.

- **Strategy 4:** Establishing a Client Service Management System which will provide information on patient drug registration, referral, counterfeit drug reporting, emergencies and consultation and Product quality check and reporting
- **Strategy 5:** Establishing an SMS Reminder Platform that will automate information on due payments, renewal of licenses and registration, available and prevailing seminars, among others.

Consequently, implementation of the above strategies is expected to lead to establishment of an **Integrated ADDO Mobile Information System** with various services and benefits to users. The system will form an integral part of the ADDO Electronic Information and Service Centre Database.

4.2.1 Description and Rationale of the System

Based on the above five strategies, the Integrated ADDO Mobile Information System is envisaged to have five key components namely mCommerce, Electronic Information Services, Electronic Logistic Management, Client Service Management, and SMS Reminder Platform. Below is a brief description of the components and rationale for integration in the system.

(a) mCommerce System

The mCommerce component will comprise a centralized payment system that will integrate payment needs of different stakeholders. Both ADDOs and wholesalers will be able to pay regulatory fees and transact business through the system using their mobile phones. Councils will also be able to receive reimbursements from the central level regulatory authorities through the system. Currently, there is no unified payment system for ADDOs, wholesalers and other stakeholders such as regulatory bodies and council authorities. The most common means of transaction among ADDO providers and wholesalers is cash, even though a few transact business through the available mobile money services in the market.

The study revealed that the current system for collecting regulatory fees is quite weak, partly because it relies mainly on physical follow up to drug shops and cash payments to the council authorities based at council headquarters. Moreover, once the collections are sent to the central level, disbursement to councils also takes time, further delaying implementation of planned activities. The mCommerce system will integrates payment needs of the key stakeholders, ease transactions in the ADDO business and increase efficiency in management of regulatory fees. Regarding design, this component will take into consideration the capacity of different users in terms of mobile technology use, need for integration

with other systems and shall include different applications such as SMS, Web and/or USSD for easy access by different users.

(b) Electronic Information Service Management System

The primary function of the Electronic Information Management System will be to increase availability and access to information on different aspects of the ADDO program. Currently there is no comprehensive database that captures basic information about the program. Information is only collected when need arises. This approach has major implications in terms of standardization of the data collection processes, cost of such processes (i.e. time and financial inputs), and high chances of duplication of efforts and unequal access to crucial program information by different stakeholders.

This is the gap that the Electronic Information Service Management System seeks to bridge by bringing together information needs of different ADDO stakeholders including ADDO providers, suppliers, regulatory bodies, council authorities as well as vertical programs collaborating with the ADDO program. In terms of design, this component will have a web-based database with all basic information about ADDOs e.g. list of all accredited shops, contact information, drug shop owner and dispenser details, service quality, list of products and product information, adverse drug reaction reports, regulatory issues, etc. All reporting forms will be made available online where they can be accessed, completed and submitted any time by the ADDO providers.

(c) Electronic Logistics Management System

Logistic management is a very important aspect of stock management. The aim of this component is to increase efficiency in procurement of ADDO supplies, reduce procurement costs to ADDOs and ensure reliable availability of quality assured products in the drug outlets. Currently, there is no centralized system to help ADDO providers to procure supplies with ease using the modern information and communication technologies especially those at their disposal.

The study showed that ADDO providers mainly acquire supplies by placing orders with wholesalers for scheduled delivery or visiting the wholesaler's shop for direct purchase over the counter. Feedback from the wholesalers revealed that 50% of their clients (mainly ADDO providers) order for supplies though physical visits, 39% through mobile phone, 6% by e-mail and 5% by fax. Moreover, it was learnt that 98% of ADDOs purchase stocks using hard cash, while 87.5% of wholesalers use the existing mobile money services to conduct transactions. Ironically, it was reported that most wholesalers prefer to be paid by

cash, despite the obvious disadvantages to their customers. Cash can be easily lost, stolen or robbed during travel. Moving around with large sums of money also exposes the handlers to security risks. Furthermore, procurement of supplies through physical visits to wholesale shops means that ADDO providers have to spend some time and money on travel, yet such costs can be avoided by using the modern information and communication technologies to purchase stocks.

The Electronic Logistics Management System seeks to address this need through establishment of a supplier database with all the necessary information about wholesalers and the ADDO products they stock. This will be integrated with electronic ordering systems and mobile payment options, to enable ADDO providers to order and pay for supplies using a more cost effective centralized system.

(d) Client Service Management System

The Client Service Management System will focus in improving the quality of ADDO services to consumers. The component will pay particular attention to increasing consumer knowledge about ADDO services include products authorized for sale in the drug shops, promoting the concept of safe medicines use and buying of medicines from authorized providers only, community monitoring of adverse drug reactions, strengthening referral care for ADDO customers; providing technical assistance to ADDO dispensers on emerging issues which require urgent consultations with regulatory authorities or technical experts, and monitoring practices of ADDOs to ensure prompt reporting on unethical behaviors which infringe on t basic rights of consumers.

Currently there is no centralized system which offers real time access to comprehensive information about ADDO products and services. Furthermore, the study revealed that even though most ADDOs seem to be referring referral cases to health facilities, 68% of the referrals are done verbally without any form documentation for follow-up. Only 34% of ADDO mentioned receiving counter referral notes from health facilities.

These are some of the challenges the Client Service Management System will address through establishment of a comprehensive database of facilities linked to ADDOs in different geographic locations. The system is envisaged to facilitate good communication between health facilities and ADDOs on both emergency and referral cases, and any other issues which need urgent consultations and response by regulatory authorities or technical experts. The systems will also include a database of ADDO services plus detailed information about authorized medicines in the outlets , and will enable consumers to enquire about any of the product though their mobile phones and report any malpractices by the ADDO provides, using either SMS, USSD or web based applications. This will also make it possible

for regulatory authorities to work together with ADDO providers and consumers, to monitor counterfeit products in the market, as well as adverse drug reactions and unethical practices of ADDO providers.

(e) SMS Reminder Service

The main purpose of the SMS Reminder Services will be to alert ADDO stakeholders of different ADDO activities or emerging issues regarding the program. The stakeholders will include but not limited to ADDO providers (owners and dispensers); ADDO suppliers; regulatory bodies at the central, regional, council and ward levels; local govern authorities; vertical programs collaborating with the ADDO program; and other development partners supporting different aspects of the program. Currently, most communication from the central level to ADDO providers who are the primary stakeholders, is relayed through council officials (many a time the district pharmacist) using letters often sent out by fax, yet the study showed that all ADDO providers and pharmaceutical wholesalers (100%) had at least a cell phone. The study also revealed that voice calls and short text messages (SMS) account for 36% and 35%, respectively of total phone usage by the ADDO providers. Moreover, 98% of the providers expressed interest in learning something about the program and/or related issues through mobile phone, an indication that the device is becoming an increasingly important communication tool to ADDO providers and other stakeholders. This is the foundation that the SMS Reminder Service will build on by linking with different ADDO components and information systems, to put relevant information at the fingers tips of ADDO stakeholders through SMS alerts.

Tables 14 and 15 below highlight some of the potential features of the Integrated ADDO Mobile Information System, supporting technologies, intended users, as well as user technology requirements.

Table 14: Potential features of the integrated ADDO mobile information system

Component	Features	Description	Supporting Technology
mCommerce	License fee [LICF]	Provides functionality for ADDO to pay their license fees.	USSD
	Registration fee [REGF]	Provides functionality for ADDO to pay their Registration fees.	USSD
	Training fee [TRAF]	Provides functionality for ADDO to pay their training fees.	USSD
	Reimbursement fee(insurance & government) [REIF]	Provides functionality for reimbursement of fee collection to the district and insurance scheme claims for ADDO.	USSD, SMS, WEB

Component	Features	Description	Supporting Technology
	Drug order payment [DROP]	Provides functionality for ADDO to pay for their order.	USSD
	Retail(Buy, sales report, sales history) [RTL]	Provides functionality for ADDO owners to receive reports, dispenser to send sales report, dispenser to receive payment and Client to pay for drugs.	USSD, SMS
	Association fee [ASSF]	Provides functionality for ADDO to pay their association fees.	USSD
	Apply loan [APPL]	Provides functionality for ADDO to apply for loan and MFIs to process loan.	USSD,SMS,WEB
	Pay loan [PAYL]	Provides functionality for ADDO to pay their loan	USSD
Information Services	Monthly report [MONR]	Provides functionality for ADDO to submit required reports.	USSD,SMS, NATIVE APPS
	Adverse drug reaction [ADDR]	Provides functionality for ADDO to report any drug with adverse reactions.	USSD,SMS
	Dispenser list [DISL]	Provides functionality to access dispenser list	USSD, WEB , NATIVE APPS
	ADDO list [ADDOL]	Provides functionality to access ADDO list	USSD, WEB , NATIVE APPS
	Regulatory issue & Standards [REGS]	Provides functionality to access regulation, policy and standards issues.	USSD, SMS, IVR
	New Drug information [NDI]	Provides functionality to access new drug information.	USSD, SMS, IVR
	Training and seminar [TRS]	Provides functionality to access training and seminar.	USSD, SMS, IVR, NATIVE APPS, WEB
	ADDO services quality [ASQ]	Provides functionality to control ADDO service quality.	USSD, SMS, NATIVE APPS
	ADDO registration [AR]	Provides functionality to access ADDO registration information.	USSD, SMS , WEB, NATIVE APPS
	ADDO registration status [ARS]	Provides functionality to check ADDO registration status.	USSD, SMS
	Financial facilities [FF]	Provides functionality to access financial facilities	USSD, SMS
	ADDO association Issues [AAI]	Provides functionality to access ADDO association issues.	USSD,SMS,WEB
	Drug registration issues [DRIS]	Provides functionality to access drug registration issues.	USSD,SMS
	Drug availability information [DAIF]	Provides functionality to check drug availability.	USSD,SMS

Component	Features	Description	Supporting Technology
	Drug usage [DU]	Provides functionality to access drug usage information.	USSD,SMS,MMS
	Personnel Registration [PESR]	Provides functionality to record and access personnel registration information.	USSD,SMS,WEB
	Personnel Registration Status [PESRS]	Provides functionality to check personnel registration status.	USSD,SMS
	Insurance Claims [INSC]	Provides functionality for ADDO to send insurance scheme claims and insurance company to process claims.	USSD,SMS
	Insurance ADDO Registration [INSAR]	Provides functionality to register ADDO on insurance scheme.	USSD,SMS,WEB
	ADDO License Control [ADDOLC]	Provides functionality to control ADDO licenses.	USSD,SMS
	Community Drug Counterfeit Control [CDCC]	Provides functionality for checking drug counterfeit and control.	USSD,SMS,MMS
Logistics Management	Check product availability [CPA]	Provides functionality to check product availability.	USSD,SMS
	Product price [PP]	Provides functionality to access product prices.	USSD,SMS, NATIVE APPS
	Order [OR]	Provides functionality for ADDO to order drugs.	USSD,SMS, NATIVE APPS
	Check status [LCS]	Provides functionality to check product stock status.	USSD,SMS
Client Services	Patient Drug registration [PDR]	Provides functionality for ADDO to send patient drug information.	USSD, SMS
	Referrals [RFR]	Provides functionality for ADDO to send referral information and health facility to send counter referral.	USSD, SMS
	Drug Counterfeit reporting [CFT]	Provides functionality client to report drug counterfeit.	USSD, SMS
	Emergency reporting [ER]	Provides functionality for ADDO to report emergence issues.	USSD, SMS
	Consultation [CNS]	Provides functionality for ADDO to get experts consultation help.	IVR, SMS, USSD
SMS Reminders	Due payments [RDP]	Provides functionality send reminder on due payments.	WEB, SMS, IVR
	Renewals [RRN]	Provides functionality to send reminder for renewals	WEB, SMS, IVR

Component	Features	Description	Supporting Technology
	Seminars [RS]	Provides functionality to send reminder on coming seminars.	WEB, SMS, IVR

Table 15: Integrated ADDO Mobile Information System Users and Technical Requirements

S/N	Features	System Users	User Technology Requirement
(a) mCommerce			
1.	License fee [LICF]	ADDOs, Wholesalers	Any mobile phone that supports SMS service
2.	Registration fee [REGF]	ADDOs, Wholesalers	
3.	Training fee [TRAF]	ADDOs, wholesalers	
4.	Association fee [ASSF]	ADDO Owner, ADDO Dispenser,	
5.	Reimbursement fee (insurance & government) [REIF]	ADDO Owner, Pharmacy Council, TFDA, Regional Pharmacist, District Pharmacist,	Any mobile phone that supports web and SMS services or computer that can access internet
6.	Drug order payment [DROP]	ADDO Owner, Wholesalers, ADDO Dispenser	Any mobile phone that supports SMS service.
7.	Retail (Buy, sales report, and sales History) [RTL]	ADDO Owner, Consumer, ADDO Dispenser,	Any mobile phone that supports SMS service
8.	Apply Loan [APPL]	ADDO Owner, Wholesalers, ADDO Dispenser, MFI	Any mobile phone that supports web and SMS services or computer that can access internet
9.	Pay Loan [PAYL]	ADDO Owner, Wholesaler, ADDO Dispenser, MFI	Any mobile phone that supports SMS service
(b) Information Services Management			
1.	Monthly report [MONR]	ADDO Owner, Wholesalers, Insurance, Pharmacy Council, TFDA, Regional Pharmacist, District Pharmacist, ADDO Dispenser	Any mobile phone supporting SMS services NATIVE APPS.
2.	Adverse drug reaction [ADDR]	ADDO Owner, Wholesalers, Pharmacy Council, TFDA, Consumer, Regional Pharmacist, District Pharmacist, Community Leaders, ADDO Dispenser,	Any mobile phone supporting SMS services.
3.	Dispenser list [DISL]	Pharmacy Council, TFDA, Regional Pharmacist, District Pharmacist,	Any mobile phone supporting SMS and web browsing services /NATIVE APPS
4.	ADDO list [ADDOL]	Pharmacy Council, TFDA, Regional Pharmacist, District Pharmacist.	Any mobile phone supporting SMS and web browsing services /NATIVE APP
5.	Regulatory issue &	ADDO Owner, Wholesalers, , Insurance,	Any mobile phone supporting

S/N	Features	System Users	User Technology Requirement
	Standards [REGS]	Pharmacy Council, TFDA, Consumer, Regional Pharmacist, District Pharmacist, Community Leaders, ADDO Dispenser,	SMS, IVR
6.	New Drug information [NDI]	ADDO Owner, Wholesaler, Insurance, Pharmacy Council, TFDA, Consumer, Regional Pharmacist, District Pharmacist, Community Leaders, ADDO Dispenser,	Any mobile phone supporting SMS, IVR
7.	Training and seminar [TRS]	ADDO Owner, Wholesalers, Pharmacy Council, TFDA, Regional Pharmacist, District Pharmacist, ADDO Dispenser,	Any mobile phone supporting SMS and web browsing services / IVR, NATIVE APPS
8.	ADDO services quality [ASQ]	Pharmacy Council, TFDA, Consumer, Regional Pharmacist, District Pharmacist, Community Leaders, ADDO Dispenser,	Any mobile phone supporting SMS , NATIVE APPS
9.	ADDO registration [AR]	Insurance, Pharmacy Council, TFDA, Regional Pharmacist, District Pharmacist, Community Leaders,	Any mobile phone supporting SMS and web browsing services /NATIVE APPS
10.	ADDO registration status [ARS]	Insurance, Pharmacy Council, TFDA, Regional Pharmacist, District Pharmacist, Community Leaders,	Any mobile phone supporting SMS
11.	Financial facilities [FF]	ADDO Owner, Wholesalers, ADDO Dispenser,	Any mobile phone supporting SMS
12.	ADDO association Issues [AAI]	ADDO Owner, Wholesalers, Pharmacy Council, TFDA, Regional Pharmacist, District Pharmacist, ADDO Dispenser,	Any mobile phone supporting SMS and web browsing services
(c) Electronic Logistics Management			
1.	Check product availability [CPA]	ADDO Owner, ADDO Dispenser,	Any mobile phone supporting SMS Service
2.	Product price [PP]	ADDO Owner, ADDO Dispenser,	Any SMS supporting SMS services/NATIVE APPS
3.	Order [OR]	Wholesaler, ADDO Owner, ADDO Dispenser	Any mobile phone supporting SMS service /NATIVE APPS
4.	Check status [LCS]	ADDO Owner, ADDO Dispenser,	Any mobile phone supporting SMS Service
(d) Client Service Management			
1.	Patient Drug registration [PDR]	ADDO Owner, Health Facility Workers, ADDO Dispenser,	Any mobile Phone which Can Support SMS Service
2.	Referrals [RFR]	ADDO Owner, Health Facility Workers, ADDO Dispenser,	
3.	Drug Counterfeit reporting [CFT]	ADDO Owner, Wholesalers , Pharmacy Council, TFDA, Consumer, Regional Pharmacist, District Pharmacist, Community Leaders, ADDO Dispenser, Health Facility workers	
4.	Emergency reporting [ER]	ADDO Owner, Wholesalers, Pharmacy Council, TFDA, Regional Pharmacist, District Pharmacist, Community Leaders, ADDO Dispenser, Health Facility Workers	Any mobile Phone which Can Support SMS Service

S/N	Features	System Users	User Technology Requirement
5.	Product Quality [PQ]	ADDO Owner, Wholesalers, Insurance, Pharmacy Council, TFDA, Consumer, Regional Pharmacist, District Pharmacist, Community Leaders, ADDO Dispenser,	
6.	Consultation [CNS]	ADDO Owner, Wholesalers, Pharmacy Council, TFDA, Regional Pharmacist, District Pharmacist, Community Leaders, ADDO Dispenser, Health Facility Workers	Any mobile phone which can support Calls and SMS services
(e) SMS Reminder Service			
1.	Due payments [RDP]	ADDO Owner, Wholesalers, Insurance, Pharmacy Council, TFDA, Consumer, Regional Pharmacist, District Pharmacist, Community Leaders, ADDO Dispenser,	Any mobile phone which can Support SMS and Calls and or Internet
2.	Renewals [RRN]	ADDO Owner, Wholesalers, Insurance, Pharmacy Council, TFDA, Regional Pharmacist, District Pharmacist, Community Leaders, ADDO Dispenser,	Smartphone Computer with Internet Access
3.	Seminars [RS]	ADDO Owner, Wholesalers, Insurance, Pharmacy Council, TFDA, Regional Pharmacist, District Pharmacist, Community Leaders, ADDO Dispenser,	Any mobile phone which can Support SMS and Calls and or Internet

4.2.2 Implementation of the System

Apart from highlighting potential features of the Integrated ADDO Mobile Information System, supporting technologies, intended users, as well as technology requirements of the user; the study identified initial key steps towards establishment of the system (see *Table 15* below), and made a significant attempt to map various stakeholders who could be part of implementation of the system (see *Annex I*).

Table 16: Initial steps towards establishment of the integrated ADDO mobile information system

S/N	Initial Activities	Responsible Organization	Timeframe
1.	Study program background and what is going on	ITIDO , MSH	
2.	Conduct focus group discussions with key stakeholders	ITIDO , MSH	
3.	Observation or analysis	ITIDO , MSH	
4.	Develop paper prototypes toward content preparation (documentation)	ITIDO , MSH	
5.	Create electronic prototypes	ITIDO	
6.	Review and pre-test the prototypes among potential users	ITIDO , MSH	
7.	Refine the prototypes based on the results from review and pretesting	ITIDO	
8.	Pilot implementation	ITIDO , MSH	
9.	Evaluate the pilot process	ITIDO , MSH	

5. PRIORITY INTERVENTIONS

In Septembers 2012, Management Sciences for Health in collaboration with the Pharmacy Council and Tanzania Food and Drugs Authority, convened a national conference to review the findings and recommendations from the study, alongside similar outputs from other contractors commissioned to assess different aspects of the ADDO program. The conference brought together ADDO stakeholders from different parts of the country and levels of implementation of the program. The main purpose of the conference was to identify priority interventions from each of the contractor's work, with the potential to add impetus to the on efforts to maintain implementation quality of the ADDO program and ensure its long terms sustainability.

With regard to the technology aspect, stakeholders were tasked to review the proposed ADDO mobile information system and prioritize the most feasible options. Thus, stakeholders unpacked the various components of the propose system and picked out items which they thought could fit in the ADDO basket of priorities and add the desired value to implementation of the program. The stakeholders also discussed how the proposed mobile technology interventions could be integrated with geo-technologies for optimal results, and recommended a simple architecture to operationalize the envisioned system (see *Table 17* below).

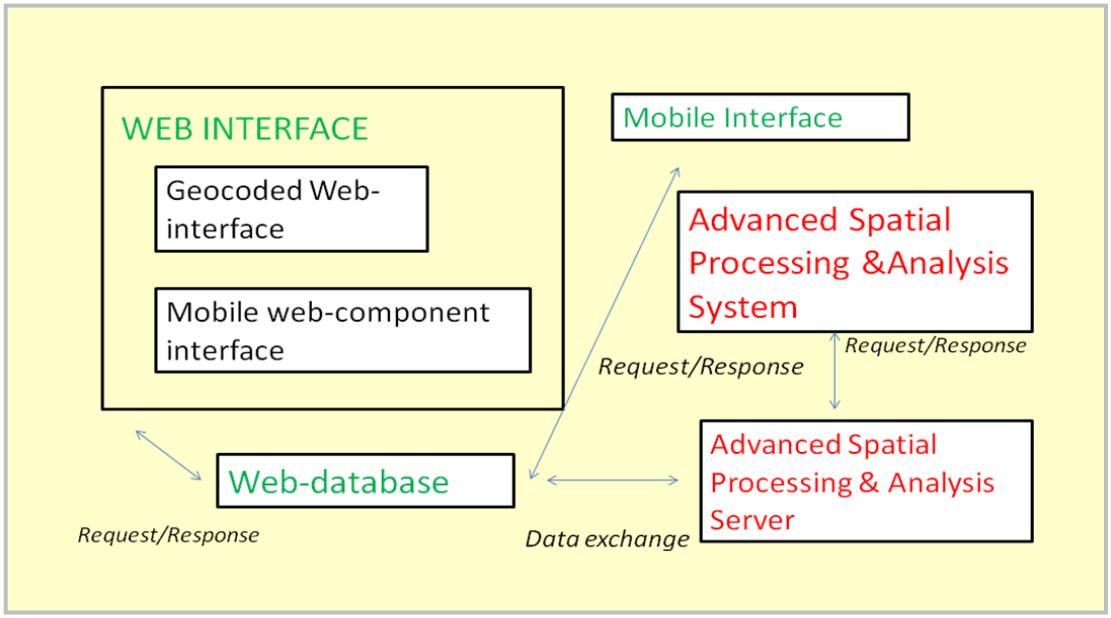
5.1 PRIORITY AREAS

The priority items identified by the stakeholders were put into two categories: (i) regulatory issues with reference to roles and responsibilities of regulatory bodies; and (ii) ADDO operational issues with reference to both technical and commercial functions (see *Table 16* below).

Table 17: Stakeholder priorities

Regulatory issues	ADDO operational needs
• Registration/accreditation of ADDOs • Management of regulatory fees (collections and disbursement) • Coordination with ADDOs and reporting • Regulatory oversight at all levels • ADDO products quality monitoring	• ADDO products availability (procurement and stock management • Training of ADDO providers (owners and dispensers) including continuing education for dispensers • Regular reporting by ADDOs • Product quality monitoring and reporting

Figure 14: Proposed ADDO information systems architecture



Note: *The features in green are interventions recommended for immediate implementation while those in red are for long term implementation.*

The following steps were suggested towards setting up of the Geo-coded Web Interface:

- Identify information needed by regulatory bodies (central and lower levels);
- Develop indicators for decision making purposes;
- Decide on database outputs and reports;
- Define data collection and maintenance procedures;
- Hire data manager;
- Determine what information and geo-codes already exist;
- Decide modalities for new geo-coding (mobile v. GPS handheld);
- Harmonize existing data with newly collected data; and
- Determine access levels.

5.2 FEASIBILITY OF THE STAKEHOLDER PRIORITIES

The stakeholder also discussed the feasibility of the identified priority areas and interventions, and ranked them by level of effort required for their implementation against expected results. Table 18 below highlights the feasibility ranking.

Table 18: Feasibility ranking of stakeholder priorities

Broad Categories	Specific Categories	Key Components	Feasibility
Priority Areas	Regulatory Issues	Registration/accreditation of ADDOs	Low effort/ High impact
		Management of regulatory fees (collections and disbursement)	Low effort/ High impact
		Coordination with ADDOs and reporting	Low effort/High impact
		Regulatory oversight at all levels	Low effort/ High impact
		ADDO products quality monitoring	High effort/ High impact
	ADDO Operational Needs	ADDO products availability (procurement and stock management)	High effort/ High impact
		Training of ADDO providers including continuing education for dispensers	High effort/ High impact
		Regular reporting by ADDOs	Low effort/ High impact
		Product quality monitoring and reporting	High effort/ High impact
Technological Interventions	Mobile Web Interface	System development	Low effort/ High impact
		Data collection and adjustment	High effort/ High impact
	Web Database	Database development	Low effort/ High impact
	Geo-coded Web Interface	System development	Low effort/ High impact
		Data collection and adjustment	High effort/ High impact
	Advance Spatial Database Analysis System	System development	High effort/ High impact

Annexes

Annex I: Key Stakeholders in Implementation of the Integrated ADDO Mobile Information System

Stakeholders	Roles & Responsibilities	Proposed Service Area	Priority	Linkage with Study Findings	Linkage with Recommendations from the Study	Linkage with Existing Potential mHealth projects
TFDA, Pharmacy Council	Revenue collection and disbursement	mCommerce	1	**FIN21:-** The study revealed the existing revenue collection system is weak due to the fact that there is manual follow up and reminder and ADDO are required to go to the district office to pay which takes time and not efficient. Also once the fund is sent to the central level there is a delay on disbursement of fund back to the district which lead to lack of enough resources to conduct monitoring and supervision to ADDOs	**REC14:-** The study recommends that the revenue collection system to be strengthened by introducing use of mobile money technologies such as M-PESA, Tigo Pesa, Airtel Money and Mobile banking with collection account such as of DAWASCO	Vodacom-Mezzanine Platform and other mobile money services (Tigo Pesa, Airtel Money)
	Policy, standard and regulation formulation and dissemination	Information Services (IS) Management	3	**FIND16:-** Mobile Phone technology can be used to improve ADDO activities in number of ways	**REC8:-** A platform that provide a real time interaction between regulatory authority and ADDOs should be established as part of initiative to address regulatory issues like product registration, ADDO registration, counterfeited products, product quality.	
	Accreditation and registration of shop and personnel	Information Services (IS) Management	2	**FIND22:-** The study revealed that there is lack of comprehensive database of registered ADDO and personnel that contribute to poor monitoring and supervision	**REC15:-** The study recommends the use of mobile phone technologies as tool to assist in registration and maintenance of ADDO and personnel	AMFm Co paid monitoring (Malaria Drug mobile data collection tool)
	Licensing issuing and control	Information Services (IS)	2	**FIND22:-** The study revealed that there is lack of comprehensive database of	**REC15:-** The study recommends the use of mobile phone technologies as tool to assist	

Annex I: Key Stakeholders in Implementation of the Integrated ADDO Mobile Information System

Stakeholders	Roles & Responsibilities	Proposed Service Area	Priority	Linkage with Study Findings	Linkage with Recommendations from the Study	Linkage with Existing Potential mHealth projects
		Management		registered ADDO and personnel that contribute to poor monitoring and supervision	in registration and maintenance of ADDO and personnel	
	Coordination	Information Services (IS) Management	2	**FIND22:-** The study revealed that there is lack of comprehensive database of registered ADDO and personnel that contribute to poor monitoring and supervision	**REC15:-** The study recommends the use of mobile phone technologies as tool to assist in registration and maintenance of ADDO and personnel	
	Supervision and Monitoring	Information Services (IS) Management	2	**FIND22:-** The study revealed that there is lack of comprehensive database of registered ADDO and personnel that contribute to poor monitoring and supervision	**REC15:-** The study recommends the use of mobile phone technologies as tool to assist in registration and maintenance of ADDO and personnel	AMFm Co paid monitoring (Malaria Drug mobile data collection tool)
	Inspection	Information Services (IS) Management	2	**FIND22:-** The study revealed that there is lack of comprehensive database of registered ADDO and personnel that contribute to poor monitoring and supervision	**REC15:-** The study recommends the use of mobile phone technologies as tool to assist in registration and maintenance of ADDO and personnel	
PSU	Oversee provision of pharmaceutical services in the country	Information Services (IS) Management	3	**FIND16:-** Mobile Phone technology can be used to improve ADDO activities in number of ways	**REC8:-** A platform that provide a real time interaction between regulatory authority and ADDOs should be established as part of initiative to address regulatory issues like product registration, ADDO registration, counterfeited products, product quality	
	Formulate National Medicines Policy and	Information Services (IS)	3	**FIND16:-** Mobile Phone technology can be used to improve ADDO	**REC8:-** A platform that provide a real time interaction between regulatory authority	

Annex I: Key Stakeholders in Implementation of the Integrated ADDO Mobile Information System

Stakeholders	Roles & Responsibilities	Proposed Service Area	Priority	Linkage with Study Findings	Linkage with Recommendations from the Study	Linkage with Existing Potential mHealth projects
	Pharmaceutical Sector Strategic Plan	Management		activities in number of ways	and ADDOs should be established as part of initiative to address regulatory issues like product registration, ADDO registration, counterfeited products, product quality	
	Oversee implementation of Pharmaceutical Logistic Management	Information Services (IS) Management	3	**FIND16:-** Mobile Phone technology can be used to improve ADDO activities in number of ways	**REC8:-** A platform that provide a real time interaction between regulatory authority and ADDOs should be established as part of initiative to address regulatory issues like product registration, ADDO registration, counterfeited products, product quality	
	Forecasting national medicine requirement	Electronic Logistics (LG) Management	3	**FIND16:-** Mobile Phone technology can be used to improve ADDO activities in number of ways	**REC8:-** A platform that provide a real time interaction between regulatory authority and ADDOs should be established as part of initiative to address regulatory issues like product registration, ADDO registration, counterfeited products, product quality	
	Working closely with	Information	3	**FIND16:-** Mobile Phone technology	**REC 8:-** A platform that provide a real time	

Annex I: Key Stakeholders in Implementation of the Integrated ADDO Mobile Information System

Stakeholders	Roles & Responsibilities	Proposed Service Area	Priority	Linkage with Study Findings	Linkage with Recommendations from the Study	Linkage with Existing Potential mHealth projects
	MSD, PC, TFDA , ministries, institutions, international organization etc. in provision of pharmaceutical services	Services (IS) Management		can be used to improve ADDO activities in number of ways **FIND22:-** The study revealed that there is lack of comprehensive database of registered ADDO and personnel that contribute to poor monitoring and supervision	interaction between regulatory authority and ADDOs should be established as part of initiative to address regulatory issues like product registration, ADDO registration, counterfeited products, product quality **REC15:-** The study recommends the use of mobile phone technologies as tool to assist in registration and maintenance of ADDO and personnel	
Regional Health Teams	Training	Information Services (IS) Management	2	**FIND9:-** Mobile phone is the potential tool in information sharing **FIND10:-** A crying need for mobile phone based education services from ADDOs	**REC 9:-** The fact that 93 percent of ADDOs call for help and the fact that 46 percent of ADDO faces cases that need consultation provide the bases for establishing a helping that should be able to address all technical issues pertaining drug dispensing **REC16:-** The study recommends that training and seminar materials / contents to be packaged in the way they can be accessed through mobile phone technologies in different formats such text, multimedia to assist ADDO owners and dispenser to do self-learning and improve knowledge	M4RH
	Supervision and	Information	2	**FIND16:-** Mobile Phone technology	**REC8:-** A platform that provide a real time	AMFm Co paid

Annex I: Key Stakeholders in Implementation of the Integrated ADDO Mobile Information System

Stakeholders	Roles & Responsibilities	Proposed Service Area	Priority	Linkage with Study Findings	Linkage with Recommendations from the Study	Linkage with Existing Potential mHealth projects
	Monitoring	Services (IS) Management		can be used to improve ADDO activities in number of ways **FIND22:-** The study revealed that there is lack of comprehensive database of registered ADDO and personnel that contribute to poor monitoring and supervision	interaction between regulatory authority and ADDOs should be established as part of initiative to address regulatory issues like product registration, ADDO registration, counterfeited products, product quality. **REC15:-** The study recommends the use of mobile phone technologies as tool to assist in registration and maintenance of ADDO and personnel.	monitoring (Malaria Drug mobile data collection tool)
	Revenue collection	mCommerce	1	**FIND21:-** The study revealed the existing revenue collection system is weak due to the fact that there is manual follow up and reminder and ADDO are required to go to the district office to pay which takes time and not efficient. Also once the fund is sent to the central level there is a delay on disbursement of fund back to the district which lead to lack of enough resources to conduct monitoring and supervision to ADDOs	**REC14:-** The study recommends that the revenue collection system to be strengthened by introducing use of mobile money technologies such as M-PESA, Tigo Pesa, Airtel Money and Mobile banking with collection account such as of DAWASCO.	Vodacom-Mezzanine Platform and other mobile money(Tigo Pesa, Airtel Money)
	Re-accreditation	Information Services (IS) Management	2	**FIND22:-** The study revealed that there is lack of comprehensive database of registered ADDO and personnel that contribute to poor monitoring and supervision	**REC15:-** The study recommends the use of mobile phone technologies as tool to assist in registration and maintenance of ADDO and personnel	AMFm Co paid monitoring (Malaria Drug mobile data collection tool)

Annex I: Key Stakeholders in Implementation of the Integrated ADDO Mobile Information System

Stakeholders	Roles & Responsibilities	Proposed Service Area	Priority	Linkage with Study Findings	Linkage with Recommendations from the Study	Linkage with Existing Potential mHealth projects
District Health Team	Training	Information Services (IS) Management	2	**FIND9:-** Mobile phone is the potential tool in information sharing **FIND10:-** A crying need for mobile phone based education services from ADDOs	**REC 9:-** The fact that 93 percent of ADDOs call for help and the fact that 46 percent of ADDO faces cases that need consultation provide the bases for establishing a helping that should be able to address all technical issues pertaining drug dispensing **REC16:-** The study recommends that training and seminar materials / contents to be packaged in the way they can be accessed through mobile phone technologies in different formats such text, multimedia to assist ADDO owners and dispenser to do self-learning and improve knowledge	M4RH
	Supervision and Monitoring	Information Services (IS) Management	2	F **FIND16:-** Mobile Phone technology can be used to improve ADDO activities in number of ways **FIND22:-** The study revealed that there is lack of comprehensive database of registered ADDO and personnel that contribute to poor monitoring and supervision	**REC 8:-** A platform that provide a real time interaction between regulatory authority and ADDOs should be established as part of initiative to address regulatory issues like product registration, ADDO registration, counterfeited products, product quality. **REC15:-** The study recommends the use of mobile phone technologies as tool to assist in registration and maintenance of ADDO and personnel	AMFm Co paid monitoring (Malaria Drug mobile data collection tool)
	Revenue collection	mCommerce	1	**FIND21:-** The study revealed the existing revenue collection system is weak due to the fact that there is manual follow up	**REC14:-** The study recommends that the revenue collection system to be strengthened by introducing use of mobile	

Annex I: Key Stakeholders in Implementation of the Integrated ADDO Mobile Information System

Stakeholders	Roles & Responsibilities	Proposed Service Area	Priority	Linkage with Study Findings	Linkage with Recommendations from the Study	Linkage with Existing Potential mHealth projects
				and reminder and ADDO are required to pay at the district office, which takes time Also once the fund is sent to the central level there is a delay on disbursement of fund back to the district which lead to lack of enough resources to conduct monitoring and supervision to ADDOs	money technologies such as M-PESA, Tigo Pesa, Airtel Money and Mobile banking with collection account such as of DAWASCO	
	Re-accreditation	Information Services (IS) Management	2	**FIND22:-** The study revealed that there is lack of comprehensive database of registered ADDO and personnel that contribute to poor monitoring and supervision	**REC15:-** The study recommends the use of mobile phone technologies as tool to assist in registration and maintenance of ADDO and personnel	AMFm Co paid monitoring (Malaria Drug mobile data collection tool)
Drug Seller Association	Linkage with authorities	Information Services (IS) Management	3	**FIND16:-** Mobile Phone technology can be used to improve ADDO activities in number of ways **FIND22:-** The study revealed that there is lack of comprehensive database of registered ADDO and personnel that contribute to poor monitoring and supervision	**REC 8:-** A platform that provide a real time interaction between regulatory authority and ADDOs should be established as part of initiative to address regulatory issues like product registration, ADDO registration, counterfeited products, product quality **REC15:-** The study recommends the use of mobile phone technologies as tool to assist in registration and maintenance of ADDO and personnel	
Drug Suppliers	Supply drugs	Electronic Logistics (LG) Management	2	**FIND16:-** Mobile Phone technology can be used to improve ADDO activities in number of ways	**REC8:-** A platform that provide a real time interaction between regulatory authority and ADDOs should be established as part	ILS Gateway

Annex I: Key Stakeholders in Implementation of the Integrated ADDO Mobile Information System

Stakeholders	Roles & Responsibilities	Proposed Service Area	Priority	Linkage with Study Findings	Linkage with Recommendations from the Study	Linkage with Existing Potential mHealth projects
				FIND4: -Mobile phones are used in ordering drugs; communicate with client about price and drug information in ADDOs	of initiative to address regulatory issues like product registration, ADDO registration, counterfeited products, product quality **REC10:-** Modern payment technology should be improved and spread across geographical territory if it were to be used as means of settling payment between parties involved in drugs transaction	
	Provide information on the product	Information Services (IS) Management	2	**FIND16:-** Mobile Phone technology can be used to improve ADDO activities in number of ways **FIND4:-** Mobile phones are used in ordering drugs; communicate with client about price and drug information in ADDOs	**REC8:-** A platform that provide a real time interaction between regulatory authority and ADDOs should be established as part of initiative to address regulatory issues like product registration, ADDO registration, counterfeited products, product quality	M4RH
	Provide information on product availability and price	Electronic Logistics (LG) Management	2	**FIND16:-** Mobile Phone technology can be used to improve ADDO activities in number of ways **FIND4:-** Mobile phones are used in ordering drugs; communicate with client about price and drug information in ADDOs	**REC8:-** A platform that provide a real time interaction between regulatory authority and ADDOs should be established as part of initiative to address regulatory issues like product registration, ADDO registration, counterfeited products, product quality	
Financial Institution	Provide loan and financial services	mCommerce	3	**FIND23:-** The study revealed there is weak relationship between financial institutions and ADDO which minimize	**REC17:-** The study recommends that financial institution to be linked with ADDO program and provide services that	

Annex I: Key Stakeholders in Implementation of the Integrated ADDO Mobile Information System

Stakeholders	Roles & Responsibilities	Proposed Service Area	Priority	Linkage with Study Findings	Linkage with Recommendations from the Study	Linkage with Existing Potential mHealth projects
				the chance to access financial services since mostly a located in rural part.	can be easily accessible and done through mobile phone technologies like loan application and repayment.	
Insurance Scheme	Registration of shop on insurance scheme	Information Services (IS) Management	3	**FIND11:-** Number of challenges in registering in NHIF schemes by ADDOs	**REC4:-** Mobile phone should be used as the way to send NHIF claim in the formatted way which can be accommodated and the NHIF should use mobile money systems to pay ADDO which are enrolled on NHIF scheme	
	Receive claims	Information Services (IS) Management	3	**FIND11:-** Number of challenges in registering in NHIF schemes by ADDOs	**REC4:-** Mobile phone should be used as the way to send NHIF claim in the formatted way which can be accommodated and the NHIF should use mobile money systems to pay ADDO which are enrolled on NHIF scheme	SMS for Life
	Disbursement of fund on claim	mCommerce	3	**FIND11:-** Number of challenges in registering in NHIF schemes by ADDOs	**REC4:-** Mobile phone should be used as the way to send NHIF claim in the formatted way which can be accommodated and the NHIF should use mobile money systems to pay ADDO which are enrolled on NHIF scheme	Vodacom-Mezzanine Platform and other mobile money(Tigo Pesa, Airtel Money)
Community Health Team	Basic supervision and monitoring	Information Services (IS) Management	2	**FIND16:-** Mobile Phone technology can be used to improve ADDO activities in number of ways **FIND22:-** The study revealed that there is lack of comprehensive	**REC8:-** A platform that provide a real time interaction between regulatory authority and ADDOs should be established as part of initiative to address regulatory issues like product registration, ADDO registration,	

Annex I: Key Stakeholders in Implementation of the Integrated ADDO Mobile Information System

Stakeholders	Roles & Responsibilities	Proposed Service Area	Priority	Linkage with Study Findings	Linkage with Recommendations from the Study	Linkage with Existing Potential mHealth projects
				database of registered ADDO and personnel that contribute to poor monitoring and supervision	counterfeited products, product quality **REC15:-** The study recommends the use of mobile phone technologies as tool to assist in registration and maintenance of ADDO and personnel	
	Basic registration of shop	Information Services (IS) Management	2	**FIND22:-** The study revealed that there is lack of comprehensive database of registered ADDO and personnel that contribute to poor monitoring and supervision	**REC15:-** The study recommends the use of mobile phone technologies as tool to assist in registration and maintenance of ADDO and personnel	AMFm Co paid monitoring (Malaria Drug mobile data collection tool)
Health Facilities	Referral management	Client Service Management	2	**FIND17:-** Accident cases, complex diseases, attending pregnant women's and failure to understand doctor's prescription are the most emergent operational issues in ADDOs	**REC18:-** The study recommends that mobile phone technologies to be used in strengthening referral and counter referral system and improve communication between ADDO dispenser and health facilities experts. **REC14:-** The study recommends that the revenue collection system to be strengthened by introducing use of mobile money technologies such as M-PESA, Tigo Pesa, Airtel Money and Mobile banking with collection account such as of DAWASCO	
	Source of prescriptions	Client Service Management	2	**FIND17:-** Accident cases, complex diseases, attending pregnant women's and failure to understand doctor's prescription are the most emergent operational issues in ADDOs	**REC18:-** The study recommends that mobile phone technologies to be used in strengthening referral and counter referral system and improve communication between ADDO dispenser and health facilities experts	SMS for Life

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Stakeholders	Roles & Responsibilities	Proposed Service Area	Priority	Linkage with Study Findings	Linkage with Recommendations from the Study	Linkage with Existing Potential mHealth projects
					REC14:- The study recommends that the revenue collection system to be strengthened by introducing use of mobile money technologies such as M-PESA, Tigo Pesa, Airtel Money and Mobile banking with collection account such as of DAWASCO	
	Basic supervision & monitoring	Information Services (IS) Management	2	**FIND16:-** Mobile Phone technology can be used to improve ADDO activities in number of ways **FIND22:-** The study revealed that there is lack of comprehensive database of registered ADDO and personnel that contribute to poor monitoring and supervision	**REC 8:-** A platform that provide a real time interaction between regulatory authority and ADDOs should be established as part of initiative to address regulatory issues like product registration, ADDO registration, counterfeited products, product quality **REC15:-** The study recommends the use of mobile phone technologies as tool to assist in registration and maintenance of ADDO and personnel	AMFm Co paid monitoring (Malaria Drug mobile data collection tool)
	Inspection	Information Services (IS) Management	2	**FIND22:-** The study revealed that there is lack of comprehensive database of registered ADDO and personnel that contribute to poor monitoring and supervision	**REC15:-** The study recommends the use of mobile phone technologies as tool to assist in registration and maintenance of ADDO and personnel	
Consumers	Monitor Product Quality	Electronic Logistics Management	2	**FIN15:-** Poor Means of Verifying Product Quality	**REC8:-** A platform that provide a real time interaction between regulatory authority and ADDOs should be established as part of initiative to address regulatory issues	

Annex I: Key Stakeholders in Implementation of the Integrated ADDO Mobile Information System

Stakeholders	Roles & Responsibilities	Proposed Service Area	Priority	Linkage with Study Findings	Linkage with Recommendations from the Study	Linkage with Existing Potential mHealth projects
					like product registration, ADDO registration, counterfeited products, product quality	
	Monitoring of ADDO services	Information Services (IS) Management	2	**FIND16:-** Mobile Phone technology can be used to improve ADDO activities in number of ways **FIND22:-** The study revealed that there is lack of comprehensive database of registered ADDO and personnel that contribute to poor monitoring and supervision	**REC8:-** A platform that provide a real time interaction between regulatory authority and ADDOs should be established as part of initiative to address regulatory issues like product registration, ADDO registration, counterfeited products, product quality **REC15:-** The study recommends the use of mobile phone technologies as tool to assist in registration and maintenance of ADDO and personnel	
Drug Seller(ADDO)	License payment	mCommerce	1	**FIND21:-** The study revealed the existing revenue collection system is weak due to the fact that there is manual follow up and reminder and ADDO are required to pay at the district office, which takes time. Also once the fund is sent to the central level there is a delay on disbursement of fund back to the district which lead to lack of enough resources to conduct monitoring and supervision to ADDOs.	**REC14:-** The study recommends that the revenue collection system to be strengthened by introducing use of mobile money technologies such as M-PESA, Tigo Pesa, Airtel Money and Mobile banking with collection account such as of DAWASCO	Vodacom-Mezzanine Platform and other mobile money(Tigo Pesa, Airtel Money)
	Registration	Information Services (IS) Management	1	**FIND22:-** The study revealed that there is lack of comprehensive database of registered ADDO and personnel that contribute to poor monitoring and supervision	**REC15:-** The study recommends the use of mobile phone technologies as tool to assist in registration and maintenance of ADDO and personnel	AMFm Co paid monitoring (Malaria Drug mobile data collection tool)

Annex I: Key Stakeholders in Implementation of the Integrated ADDO Mobile Information System

Stakeholders	Roles & Responsibilities	Proposed Service Area	Priority	Linkage with Study Findings	Linkage with Recommendations from the Study	Linkage with Existing Potential mHealth projects
	Training	IS Information Services (IS) Management	2	**FIND9:-** Mobile phone is the potential tool in information sharing **FIND10:-** A crying need for mobile phone based education services from ADDOs	**REC9:-** The fact that 93 percent of ADDOs call for help and the fact that 46 percent of ADDO faces cases that need consultation provide the bases for establishing a helping that should be able to address all technical issues pertaining drug dispensing **REC16:-** The study recommends that training and seminar materials / contents to be packaged in the way they can be accessed through mobile phone technologies in different formats such text, multimedia to assist ADDO owners and dispenser to do self-learning and improve knowledge	M4RH
	Provide access to quality medicine and Information	Electronic Logistics (LG) Management	2	**FIN15:-** Poor Means of Verifying Product Quality	**REC8:-** A platform that provide a real time interaction between regulatory authority and ADDOs should be established as part of initiative to address regulatory issues like product registration, ADDO registration, counterfeited products, product quality	

Annex II: Tanzania Telecommunications Regulations

- Tanzania Communications (Quality of Service) Regulations of 2005
- Tanzania Communications (Broadband Services) Regulations of 2005
- Tanzania Communications (Consumer Protection) Regulations of 2005
- Tanzania Broadcasting (Content) Regulations of 2005
- Tanzania Communications (Licensing) Regulations of 2005
- Tanzania Communications (Importation and Distribution) Regulations of 2005
- Tanzania Communications (Installation and Maintenance) Regulations of 2005
- Tanzania Communications (Interconnection) Regulations of 2005
- Tanzania Communications (Telecommunication Numbering and Electronic Address) Regulations of 2005
- Tanzania Postal Regulations of 2005
- Tanzania Communications (Radio Communications and Frequency Spectrum) Regulations of 2005
- Tanzania Communications (Tariffs) Regulations of 2005
- Tanzania Communications (Type Approval of Electronic Communications Equipment) Regulations of 2005
- Tanzania Communications (Access and Facilities) Regulations of 2005

Other regulations which have been recently introduced include:

- The Electronic and Postal Communications (Quality of Service) Regulations, 2011
- The Electronic and Postal Communications (Central Equipment Identification Registers) Regulations, 2011
- The Electronic and Postal Communications (Digital and Other Broadcasting Networks) Regulations, 2011
- The Electronic and Postal Communications (Computer Emergency Response Team) Regulations, 2011
- The Electronic and Postal Communications (Competition) Regulations, 2011
- The Electronic and Postal Communications (Tariffs) Regulations, 2011
- The Electronic and Postal Communications (Mobile Number Portability) Regulations, 2011
- The Electronic and Postal Communications (Postal) Regulations, 2011
- The Electronic and Postal Communications (Radio Communications and Frequency Spectrum) Regulations, 2011
- The Electronic and Postal Communications (Interconnection) Regulations, 2011
- The Electronic and Postal Communications (Accounting Separation) Regulations, 2011
- The Electronic and Postal Communications (Consumer Protection) Regulations, 2011
- The Electronic and Postal Communications (Electronic Communication Numbering and Addressing) Regulations, 2011
- The Electronic and Postal Communications (Access, Co-Location and Infrastructure Sharing) Regulations, 2011,
- The Electronic and Postal Communications (Licensing) Regulations, 2011

Summary Report
Of
Meeting held
with
mHealth Implementing Organizations,
Central Level and Mobile Operators

June 2012

Client	Contractor
Management Science for Health (MSH)	**Invention and Technological Ideas Development Organization (ITIDO)**
Submission Date:	**2nd July 2012**

List of Abbreviations

ADDOs	Accredited Drug Dispensing Outlets
CDC	Center for Disease Control
DLDB	Duka La Dawa Baridi
DMO	District Medical Officer
DPham	District Pharmacist
ICT	Information Communication Technology
M4RH	Mobile For Reproductive Health
mHealth	Mobile Technology Health Project
MoHSW	Ministry of Health and Social Welfare
NHIF	National Health Insurance Fund
NMCP	National Malaria Control Program
SDSI	Sustainable Drug Seller Initiatives
TCRA	Tanzania Communication Regulatory Authority
TFDA	Tanzania Food And Drug Authority
URT	United Republic of Tanzania

Contents

Introduction

During field visit in Bagamoyo and Manyoni districts we found that there are some of the mHealth project existing on the respective areas and used. Among of the mHealth projects we discovered were ***M4RH*** implemented by FHI360, ***SMS for Life*** implemented by National Malaria Control Program(NMCP), ***ILS Gateway*** implemented by JSI ,MSD and MoHSW, ***Kichaa cha Mbwa*** implemented by WHO and MoHSW, ***Malaria Drug mobile data collection tool*** implemented by Tanscott Associates and Global Fund and ***Free Airtime*** which provided by Benjamini Mkapa HIV/AID Foundation(BMHF).

We also identified other organization like CDC mHealth partnership, Tanzania mHealth Community of Practice and Monitoring and Evaluation Unit at the Ministry of Health and Social Welfare (MoHSW) who are the key player of mHealth activities in Tanzania. On discussion with these group we discovered that Vodacom is on the process of deploy the mHealth solution platform know as Mezzanine that will help organization which want to implement mHealth project to interface or use it which draw our attention and Interest to meet with Vodacom as mHealth solution provider and potential mobile operator to work with. The summary of the discussion and what we found from the mentioned project are briefly explained in the following paragraphs.

M4RCH Implemented by FHI360

At FHI360 we meet with Elizabeth T Ndalikemi who works under research unit in the family health projects which is funded by PROGRESS which ends June 2013

The discussion started by quick introduction. from the team and Mr Jafary Liana who is the Senior Program Associate from MSH by explanation on the SDSI program aim which is to improve and accredit drug shops in the villages by providing education to owners and dispensers and that the program started from 2003 and now it continues. He indicated that MSH have also review the list of drugs allowed to the ADDOs together with TFDA and pharmacy council. Currently the drug list is around 40 items and the drug list focus on drug for basic treatment.

SDSI program encourage ADDO to refill the clients/patients and not otherwise since the patient/client have to start at the health facilities and come with prescription to buy drugs. Currently there is around 4000 ADDO and 9000 trained dispenser/ owners .

Since the network of ADDO has expanded there is a challenge to coordinate these ADDO due to many responsibilities of the coordination committee. So MSH is trying to explore how mobile technology can assist in coordination , management of ADDO and improvement of ADDO services and business.

About M4RH

Ms Elizabeth explained that they have two project funded by PROGRESS which are M4RH – ***Mobile for reproductive health*** and Family planning mobile job Aid for Community Health Workers in collaboration with Pathfinder and D-Tree International which will start on July 2012.

M4RH:- started as a pilot for 9 months and when finished they received fund to run it as a program. The aim of the project is to educate the community about family planning and not to replace normal counseling activities at the health facility..

FHI360 have worked with other partners to expand and advertise the M4RH program further. Currently John Hopkins University (JHU) has to advertise more about their programs through media like TV and Radio.

FHI360 have recently got funding from mission to expand the M4RH project up to June 2013. Also the funding support additional of more information and address side effects and provide more education to the community. FHI360 also is planning to prepare content for youth in collaboration with other internal project know as UJANA.

How M4RH works

It is not push service but request service where by the client need to request so as to receive information by sending SMS with word M4RH to 15014 to join or subscribe. Once the client join to the system, the system will give the menu options in which they can select by send SMS coded number to receive information you need.

There no cost for the user/client since FHI360 has already paid for the cost to the service provider who is Text To Change from Uganda. The approximately cost paid to the service provider is $20,000 per year. This cost was before JHU joined to support in expanding and advertising the project. When JHU started promoting M4RH through Jiamini Campaign there were and increase of hits which resulted to JHU pay another $20,000 to the service provider.

Currently there is no technical part handled by FHI360 and they have subcontracted all to the service provider which is TextToChange. This is because FHI360 has no ICT unit and whenever they need the service they do outsource to ICT companies.

One of the reason for the service provide to come from Uganda is that M4RH runs in two countries(Tanzania and Uganda) so it was easier to subcontract one company to support service in both two countries. The MoHSW in Tanzania have recommended that it would be good if supported by local company.

Technology

M4RH uses normal text (sms gateway, short code)

Challenges

We have encountered some challenges for the period which the project has been running like

- Network which sometimes goes on and off
- Few facility information available in the system
- FHI360 failed to cover whole country and cover whole information on family health issues

- Clients/users need more information to cover other areas such as HIV , children.
- Information need to be summarized and coded with key words so as to be accessible in SMS format easily

Sustainability

The sustainability is challenging especially on covering cost associated with maintain the system and service since it free service. M4RH has attracted more partners have shown interest to expand and advertise it more but still these organization still depend on donors/development partner support.

The MoHSW has shown interest to adopt and support the system but they need FHI360 to conduct study which will show the impact even though currently M4RH have around 100,000 subscribers/users/clients

Linkage with ADDO program/shop

- M4RH can assist ADDO dispenser and owner to learn on family planning issues and side effects to advice the client/ patients.
- They can also direct patients to assess the system through the short code number for more details and information.
- The M4RH can be used as the learning tool for ADDO owners and dispenser on family health issues and any other material that can be packaged using the same technology.
- The system can also assist to know nearby ADDO shop and health facility for normal user.

Strength of M4RH

One of the key strength of M4RH is It can be accessed by any type phone since it use SMS technology.

Integration with other projects

FHI360 are planning to integrate with ILS gateway to report stock-out of family planning products at the health facilities as the way to improve the service.

Coverage so far

So far the service can be accessible country wide but due to the fact that it has key basic information and fews health facilities it make the coverage to be limited some few places. Also currently the system cannot produce analysis report based on geographical coverage.

Implementation Stage

The project started as the pilot on 2009 which ended and then started again as project/program from March 2011 to June 2013 under funding from PROGRESS which has not extended to 2014 with funding from MISSION.

Success

The project has been successfully since it

- Extended the targeted hits
- Managed to work with other ten partners who are JHU-Jiamini campaign, GIZ which promote CHW and outreach, Mariastopers , PSI, pathfinder, CCBRT, ISHI project which FHI360 project ,Road project which FHI360 project, TMARC and Engender-health champion project.

SMS for Life Implemented by NMCP

We meet with Wilson J Mwafongo who works with NMCP on SMS fo Life project , he introduced us to NMCP Manager Dr Mohamood where we explained in brief the purpose of our visit which is to learn from their projects .

Project Overview

This project was originally the idea of one of the partners known as Novats Pharm which is the company manufacturing ACTS drugs . This was due to crisis of stock-out at the health facilities which was a crisis and they did notice the crisis and came up with this innovative idea to start ***SMS for life*** and introduced the idea to MOHSW which lead to start pilot project on 2009 at Lindi Rural, Mahenge and Kigoma Rural .

The project was piloted for one month on 2009 and the result of pilot was good and impressive especially for Lindi Rural who performed very well under the supervision of Dr Mohomed who is currently the NMCP Manager.

The system enable DMO, RMO,NMCP, to see the status of stock-out and Lindi Rural was proactive to act and take action which enabled to reduce stock-out at the health facilities by 90%. After that success story from project especially Lindi, the MoSHW decided to roll-out the project countrywide.

Partners

SMS for life has been implemented by different partner such as MoHSW, Vodafone, Vodacom foundation, IBM, RBM, NMCP, Novat Pharm and PMO-LARG during pilot. Each partner was willing to pay for part of the cost as contribution and they signed Memorandum of Understanding (MoU)

On roll-out PSI Tanzania and MMV were added whereby MMV was the main funder for roll-out who provided fund for training and cost for implementing agent who was PSI Tanzania. The roll-out was completed on December 2011 and It has covered the whole country to all districts and public health facilities. They also trained DMO, District pharmacist, member of CHMT, DHMT and one malaria focal Person, health facility in-charge for every health facility.

All Focal person were given smart phones like blackberry as the working tool and vodafone paid for toll free number.

Basic requirements of the system

For the system to work you need

- Server and ICT experts to develop in future and database are needed. Initially IBM participated on setting up the server and maintain as their contribution.
- The Mobile phone will be needed as the tool to help data senders to report the stock-out and receive their incentive(air-time)
- Mobile operators must be available , ready and willing to participate
- Toll free number to avoid cost to the sender
- Training of senders which take half a day only for experience. It is good for training be centralized so as to be effective and productive.
- Cost of approximate $100,000 to cover per-diem and other training and implementation expenses
- Domain hosting , registration cost and preparation
- System administration and web-master

Technical

The service is currently hosted outside the country and for technical issues contact J Burington.

Success

- We managed to minimize stock out of malarial drugs
- We managed to cover the whole country
- Due to success of project in Tanzania now is gong worldwide(Kenya ,Uganda, Malawi, Gambia)
- We managed to involve partner who are will to cover part of the cost especially on supporting and developing the system.
- They system is secured and all users need to be registered and provided with username and password. All sender details and their respective mobile phone number must be registered and if the line is lost then they must be de-registered so as control system confidentially, privacy and mis-use.
- Observe coverage of mobile operators and it is good to use the one with large coverage.
- It is good to have IT support team with basic knowledge to support the system and users/senders/dispensers. Also it is good to have people at Regional and District levels that can provide support.

- Also computer availability and Internet connectivity should be observed so as to assure success.

Challenges

- Delay to take action after knowing the drug visibility of malaria drugs at facilities.
- Few districts (DMO) take action to place emergence order which make the problem not to be eliminated fully.
- SMS for life helps to push decision and while there is another system known as ILS gateway which send quarterly report of drug stock-out and ordering but there is not integration between the two systems. SMS for life has weekly report while ILS gateway is quarterly and cover few parts of the country. So the challenge is to make ILS gateway to enable delivery of drugs reported as drug stock out weekly by SMS For Life. Also for ILS gateway are divided into groups that order differently.
- Some of the areas network connectivity is weak which makes reporting not to be sent on time and so miss the prompting message which reminds them to send to the system.
- Change the staff from using paper system to use sms for life. To achieve this we have tried to introduce airtime incentive token about 1,000Tsh. This is also involved Push mobile to enable to send incentive on time for uses with line different from Vodacom.
- Another challenge is sustainability especially when the government MOSHW will take over especially in payment of incentive of airtime. Server to be outside the country (UK).
- Decision makers (NMCP,RMO,DMO,MSD) does not have culture to access the system which makes decision making process to delay.
- System currently show basic information for only stock out but there is no good reporting system which helps making good decision which needs system improvements and addition of more features with check and balance.

Linkage with ADDO

Since we are using ADDO through MFM as one outlet to distribute malarial drugs so there is direct linkage and we can use them for other things. ADDO can use SMS for life to report other drugs stock out more than 6 products currently supported and the system can be improved to take more orders.

Future plans

- Plan to integrate with ILS Gateway but we are still exploring how to integrate the system that will simplify for users.
- Plan to own the system from currently 20% to 80 % and pay for all the cost associated in collaboration with other partners.

How sms for life works

To be use SMS for Life you just compose SMS with list of drug with stack-out and send to web based system where RMO,DMO, NMCP/MSD log on the system view information to take action. There is reports and training materials on how to compose information.

AMFm Co paid monitoring implemented by NMCP through Tanscott Associates (Malaria Drug mobile data collection tool)

We meet with Evance Makundi who is the ICT personnel at Tanscott Associate who explained that the tool was developed as part of the main project which is to conducted Monitoring and Evaluation of AMFm for private sectors. The main objective of the program is to monitor ACTS distribution and price range. The project is funded by Global Fund who subcontracted Tanscott Associate under MNCP to work on the assignment. The project period is one year from December 2010 up to June 2012. The project started as pilot project with the plans to make it sustainable by make it adopted by the government through TFDA. The idea was to monitor the use of ACTs drugs to ADDO, pharmacies, and other private health facilities.

So they managed to map health facilities, ADDO and pharmacy for private for the whole country. After registration and mapping of these outlet later they use few districts to roll-out data of malarial drugs especially subsidized ACTs.

At the end of June 2012 the project will be handled to TFDA and pharmacy council.

Technical issues and solution

The data collection and reporting solution is web based with GIS functionality to map outlet on the Google Map. The data collection was done by data collectors who are from CHMTs at district using web based platform and mobile data collection tool developed using XForm and Javarosa engine. The solution is hosted outside hosting space.

The mobile data collection tool and web based reporting platform was locally developed and supported by Tanscott Associate ICT unit.

During project handle over to TFDA , Tanscott Associates have not decided if they recommend mobile tool or web-based platform due sustainability issues to buy and maintain mobile phones and airtime cost associated.

Challenges

During implementation of the project especially we faced some challenges like

- Developing analytical plan
- Change of data collection form need to be standard for easy implementation of electronic system especially mobile tool.
- MNCP have not provided feedback
- Some data collectors were not providing proper collaboration

- Geographical distribution of ADDOs
- Network connectivity (Airtel) was challenging to some places that caused data not collected on time.
- ADDO was not distributed to whole country
- Some dispenser does not know to keep records especially at rural areas
- Registers get lost and some are full before receiving new ones for record keeping

Partners

Tanscott have collaborate with TFDA in implementation of the project

Linkage with ADDO

It can help to

- Monitor ADDO sales
- Check registration status using license number field.
- Assist in distribution of drugs it is properly done and tracking the use of proper drugs /medicine
- Assist in collection of revenue from ADDO license fee

Future plans

The project ends on June 2012 and TFDA/pharmacy council will to take over.

Recommendations

- The use of mobile tool has some challenges like loss of mobile phone, battery failure, some time data are not exactly or correct so plans shall be in place to address these issues.
- Also due to the type of mobile phones handset available in the market it is good to consider other mobile technologies such as SMS, USSD that can be accessible by large number of mobile phone handset.
- Choosing hosting provider who is reliable and affordable.

ILS Gateway: JSI USAID DELIVER PROJECT

We met with Frank Nkilla at JSI where started by providing background information of ADDO and the filed activities we have done in Bagamoyo and Manyoni and that ILS Gateway was one of the mHealth Project mentioned on the field. We explained that the purpose of the meeting is to learn from their work and see how the project can potentially link or adopted to be used on ADDO program to improve operations. On ILS gateway there are for report

Mr Frank explained that the ILS Gateway is the project that aims on improving ILS Manual paper system for public health facilities. The challenges observed that ready at introduction of ILS Gateway were report not received on time and poor quality of reports. The project started on 2010 as pilot project by designing the SMS application to send reports of 6 selected commodities to the web based dashboard system that was accessed by the district team and central level. The project was initially implemented in Newala, Masasi and Tanadahimba Districts.

The reports which are sent by SMS through ILS Gateway are

- **Stock –in hand** which is send at the end of every month. The system sends SMS to health facility in-charge and the pharmacy section to ask for stock-in hand report by 5th of very month.
- **Request Report(R&R)** , The system ask if they have received ordered drugs
- **Stock Adjustment/looses,** The system ask if there is any expired items
- **Supervision,** The system ask if they have been supervised by central level

Success

- The ILS Gateway started with six commodities only and JSI put the close follow up on these monthly reports which lead good success. This led to MoHSW to request for more commodities which was extended to approximate 20 items and expanded to other area like Tanga
- The report rate has been improved due to reminder
- The quality of reports has been improved due to visibility of reporting on web interface

Partners

Currently the ILS Gateway is implemented by JSI who are working with MoHSW and collaborate with DIMAGI use base company, PUSH mobile which is the local partner on SMS services

Advantage

- Users use their own phone and there is no provision of phone
- The user are not changed anything it is already paid by USAID which make acceptance of the project
- User from all mobile phone operator can easily access it

Challenges

- Delay to take action
- Mobile network problems to some areas

- Suitability of present is challenging after finding especially covering airtime cost
- Reporting on time is still challenge it need close follow up by JSI team
- The cost for follow up is covered by JSI from project budget

Current Status and Plans to Scale-up

- Due success shown by the projects on the pilot phase the project now will be scaled up to one district in MTWARA, DAR-ES-SALAAM, PWANI and TANGA
- From July 2012 recommendation from the MoHSW is to roll-out by zones across the country at different stage
- The monitoring will be left to District Pharmacist who will be given laptops and internet access then JSI will just support them.
- The MoHSW will cover some of the cost and in future they will have to budget for projects

Technical Issues

- USAID contracted Dimagi straight at the headquarter to handle all critical technical issues and whenever JSI have problem communicated them to Dimagi or headquarter for action.
- Servest are hosted in Boston USA

Linkage with ADDO

- Since ADDO is private and ILS Gateway is the project aiming at supporting the public health facilities then there is not direct link than learning from it or using the similar technology and intervention for ADDO program.

Recommendations

- Technology is good it save time but it cost
- Have better way to control the quality and accuracy of the information submitted. One approach can be to call to verify or request for clarifications
- MoHSW to discuss with mobile operation to support these initiatives

Note:

JSI have done the impact survey report and report is available at the MoHSW and that is why there are interested to scale- up

The use of technology has improved the availability of products and facilitation of re-distribution of drugs at health facilities.

The government staff to adapt the project and the program is very challenge since there are not committed

Vodacom Tanzania- Mezzanine Platform

Based on the recommendation from mHealth PPP we me with Dylan Lennox who is the Chief Officer, M-Commerce and Minal K Sanghvi. Mr. JAFARY Liana from MSH provides the background of ADDO and how it works. We explained the aim of our visit and the field work we have done in Bagamoyo and Manyoni. They were interested and ask quick number of questions to understand well the ADDO program what we have done before they start to respond.

Based on the discussion and questions we structure our discussion in three main areas that will easily and focused for them to respond as follows

1. Basic Value Added Service(VAS)
2. M PESA (Mobile Money)
3. Mezzanine Platform initially known as MHEP

Basic Value Added Services (VAS)

The VAS can be used to share information to ADDO either by

- PUSH to them or PULL by self request
- Use SMS or voice/calling

What needed for VAS service to work are

- Content source from MSH/TFDA/Pharmacy Council as their key role to create contents. Vodacom can work with MSH/TFDA to format the content in SMS format or one minute voice message to be accessed by ADDO owners and Dispenser
- Vodacom and MSH to figure off the price for SMS or content access
- For the voice there is an music radio where ADDO can call and listen on music radio with ADDO content or information
- Build some lessons on the voice where the ADDO can phone and listen or broadcast to them
- ADDO pay for service
- MSH and Vodacom to market the services

So the process in summary is ***Create project -> prepare contents ->discuss price***

Market Penetration

For market share statistics in summary

- on SIM card Vodacom penetrating is 50% while operators market share range for 40%- 50%
- On subscription
    - Vodacom 45%
    - Tigo 29%
    - Airtel 20%
    - Zantel 5%
    - Others(Sasatel, Benson Informatics etc) 1%

Note: All of the mobile operators can provide SMS, Voice and VAS

Other requirements needed for VAS are

- Short code purchase from TCRA
- Application database of contents and users
- Connection to SMSC via SMPP protocols
- Connect to all operators or work with service providers like Selcom, efulusi, PUSH and Star Fish mobile. It is important to note that using service provider might lead the price for services to higher but it will speed the process and make the services available in a short time.

M PESA Service

Based on the ADDO operations and management M-PESA can facilitate on payment process as follows

- Revenue Collection especially on payment of annual/license
    - This can be done by opening collection account like DAWASCO and ADDO can pay their fees through M-PESA. The setup and arrangement for this account which will be owned by TFDA or Pharmacy Council can be done within a week after having all documents required
    - The ADDO can use M-PESA as usual and they will choose TFDA/PC account then insert their unique reference number (license number), put amount and confirm the payment.
    - Once the money is collected to the collection account the central level (TFDA or PC) will the process the payment for district according to the agreed percentage and disburse the fund accordingly. The system can be also

configured to send SMS every time the transaction is done and money is transferred which will keep all record of transaction for recording and verification purposes. Vodacom can generate the file which TFDA or PC can use to process the disbarment of fund according to their procedures.

- On marketing of the services Vodacom can print posters with proper instructions for users(ADDO) on how to do payment
- The process of setting up the collection account for ADDO to start to pay can be done in a period of a month
- Revenue will be collected monthly upon agreement with TFDA or PC

- Payment for drug or other items during purchase
  - MSH/TFDA will be required to provide or assist in getting the list of ADDO, wholesalers and restricted wholesalers
  - This can also be done by opening collection account for wholesalers and ADDO can pay for drug or item ordered to the supplier of choice through M-PESA.
  - Once the money is collected to the collection account the supplier will the process the order and deliver according to the respective ADDO
  - The system can be also configured to send SMS every time the transaction is done and money is transferred which will keep all record of transaction for recording and verification purposes.

Note: The revenue collection can be done by any other mobile operators like TIGO and Airtel and procedure might be similar.

Mezzanine Platform

The Mezzanine platform as the name indicated is the software application that provides foundation for building or integration different use cases as per need through API. The platform can be used for data collection use case scenarios with any data set (simple and complex) through SMS etc.

For Mezzanine platform to meet the need as required there some issue such as

- Complexity of the data set need to be collected. Simple data set may need just SMS application and more complex data set might need smarter application.
- Also the platform has number of standard API but they might need some configurations to use it
- It might need to contact the mezzanine development team to understand more technical aspects and support.

The mezzanine platform can be used

- To records details of patient or clients they have attended / dispensed drugs as they do currently using registers by ADDO.
- To control counterfeit drugs where the client send the SMS with barcode number and drug name to check if it is registered or allowed. The details sent by the clients will be received by central level and authority instantly and then the system check on the database then reply back to the sender the drug information
- As the middle layer
- To provide connection to the mobile operator network to access services such as SMS,USSD and other data services
- To control temperature of different device such as fridge where you just put the SIM Card which will send the SMS to the mezzanine platform on temperature change and the mezzanine platform can send SMS to the responsible person. This can improve supervision and control power fluctuation especially for cold chain items or drugs

How does Vodacom work with partners or groups like MSH

- Vodacom see both cooperate social responsibility and business side to support initiatives like mHealth in health sector
- Currently working with MOHSW to see if they can choose to use mezzanine as platform/enterprises for health section and other groups get benefits
- Mezzanine is a business platform where Vodacom need to make money out of it to make if sustainable

Note:

- For VAS (content) and M-PESA services business arrangement is needed but the benefits depends on the users(ADDO)
- Need to link ADDO with Insurance, banks, MFIs that will help ADDO to save some funds from their business profit and create good profile that will enable them to take loan for business expansion or other issues. Also they may work with ADDO to create suitable and profitable business
- Also for ADDO registered with NHIF they can used M-PESA upon good arrangement to receive their reimbursement. The NHIF can have collection account which they use to pay the ADDO to their M-PESA account or bank account which they can also access through M-PESA

Monitoring and Evaluation Unit-MoHSW: Overview of mHealth in Tanzania

We meet with Dr Mwenesi Mwendwa who is the mHealth Coordinator at the MoHSW. We provided the brief explanation about the field and MSH ADDO program so as to create focus on the discussion. The mHealth Projects at the MOHSW started on 2007-2008 but there was not proper coordination. The first official mHealth project was Phone for Health which

started on 2009. The SMS for Life project come later to control availability and stock out of the malaria drugs at the health facilities under NMCP. Late 2009 to early 2010 there was a lot of mHealth projects Initiatives implemented by Non-profit /private organizations

At the beginning there was no proper coordination but on 2009 the MoHSW so the need for proper coordination and monitoring of mHealth projects especially at the Ministry level.

Late 2010 and early 2011 the MoHSW met with NGO/private organization to start the mHealth community of practice and network to share what is going on and the mHealth projects updates. On frequently meeting through community of practice it was discovered that there is a need to do mapping for mHealth project so as to facilitate coordination and keep the MoHSW to update on what is going on the ground

Through the ME unit at MoHSW and Tanzania mHealth Community of Practice we have managed

- Advocate itself and mHealth initiatives in Tanzania
- Attend international conference
- Share which we do as community and organization involved
- Some members of the community have managed to secure funding
- Put Tanzania on the global map on mHealth Initiatives

mHealth Projects

There are number of mHealth Projects implemented in Tanzania though mostly are on the pilot stage but few have managed to be used widely like Phone for health, ILS gateway and SMS for life. On Reproduction and Child health there is a lot of projects and many organization implement mHealth projects on that areas. Few projects I can easily point out are M4RCH, Wired Mother in Zanzibar, e-RCH for Better Care in Rufiji and other community health project that use CommCare.

Linkage with ADDO

Most of the mHealth Project can be customized to work on ADDO program on technology point of view but likely project or program can be SMS for Life and ILS Gateway.

Success

- Most of the mHealth Projects have managed to explore the gap in health that can mobile phone technology can be used to improve services but detailed evaluation is needed to check the health impact contributed by these projects
- Managed to receive a lot of finding support from development partners

Challenges

- Coordination and Control of mHealth projects

- Sustainability of mHealth projects
- Evaluation of mHealth projects with respect to health impact
- Gaps between ICT and health expertise in implementing mHealth projects which lead to misunderstanding or wrong way of doing things
- Mostly mHealth projects are develop at foreign context
- Community behavior to accept the mHealth intervention
- External experts develop application and come to test in Tanzania on which sometimes overwork the MoHSW especially when the program does not align with MoHSW priorities

Recommendation

- The ADDO mHealth program should help in controlling of counter-feet drugs control (send barcode number to check if the drugs are genuine or not). This will enable the community to improve services and quality of drug products sold on ADDO.
- Include the feature to provide community with drugs information
- Drugs shop to report drugs stock, products information, collect revenue and get informatics for central level
- Evaluate mHealth Project impact especially on health at each phase of implementation
- Create mHealth project that focus to address user/consumer needs and gaps
- Involve all key players
- **mHealth = Technology and Health** so the two parts has to have common understanding and goal which result to impact on health sector and community.
- Health expertise need to understand and accept that we cannot leave technology aside because if we do not take it will not achieve the goal to improve health delivering system
- On implementing mHealth project change management needed as one of the key strategy and components/milestone of the projects.
- Government to be willing to cover mHealth projects associated cost
- Educate and create awareness to the community (through media and other material) and show the benefits of the technology with respect to their health
- Development partners and Donors should think at the local context

- Involve local experts from initial stages of conceptualization to the implementation of the mHealth project for suitability

PHARMACY COUNCIL

At the Pharmacy Council we met with Mohamed Shehk and Ms Kinyawa who is the Registrar. The discuss went direct to what they expect and want mobile phone technology to assist them since they know the ADDO program and MSH has been involved them on the ADDO program and intervention they are currently doing.

The general comment at the start was the use of mobile is good idea and will facilitate communications, reporting and monitoring. The mobile phone technology intervention will help

- To monitor ADDO and in format them on any emergency issues concerning drugs
- To provide easier way to reach remote community especially on alerts
- To follow up ADDO dispenser and owners and to enable to control/ avoid using one certificate to more than one shop and making sure required trained dispenser/owner are on the ADDO.
- Report adverse drugs reacting
- Exchanging informant and experience for among expertise
- As pharmacy council is expanding to support and supervision ADDO there is an opportune to host mHealth infrastructure and maintain it since it will help to simplify works

From pharmacy council perspective the use of mobile phone technology to improve ADDO operation should take into consideration to include features that will enable

- Registration of ADDO premise
- Monitor ADDO premise and trained dispenser and owner
- Revenue collections
- Regulation issues and control licenses
- Information sharing and communication
- Improve training, seminars for ADDO owners/dispenser and information sharing on issues related to training at seminaries.

Sustainability issues

- ADDO are reporting to the community so Government has to sustain it
- Improve revenue collecting so as to get funding to support and maintain ADDO

- Encourage the government to set budgets to support core issues needs for ADDO
- Stretcher PPP to provide more rooms for partners to work with PC on ADDO program
- Networking of ADDO with key areas in community like health facilities, village leaders so as to provide better services and bring impact to the community
- For long term we should aim to have one year trained staff/dispense and owner
- It is good to provide existing dispense with addition training so as to have carrier development
- To have frequent communication and consider small cadre at the community such local leaders to assist on basic monitoring and supervision of ADDO with incentive and mobile phone technology for ADDO should take that into consideration.

mHealth Public Private Partnership/CDC

We meet with Sarah Emerson and we explained in brief the purpose of our visit and the ADDO program implemented by MSH. On the discussion we observed that MSH ADDO program have enough support technology like ILS Gateway and SMS for life and she advice if we can meet with group and organization working on those projects to learn more.

- The interest of mHealth PPP is to look on the enterprises point of where by the MoHSW will provide leadership on mHealth initiatives and create the better way to work with private organization with cost sharing mind set. Through mHealth PPP arrangement the MoHSW has managed to engage some private companies to work with the ministry. Currently there are ongoing arrangement if the MoHSW can use the Vodacom Tanzania Mezzanine platform for all mHealth projects as the central core platform program since the program features cover cross cutting issues so a lot of private organizations might be interested to support but it has not been finalized.

Recommendations

Some recommendations identified on the discussion are

- To look on the regional and International player who want to support mHealth initiatives in Tanzania and try to align with them for sustainability. Some of the examples are GAVI who has funding and want to come to Tanzania to promote immunization and vaccination and they are interested to work with Vodacom Tanzania to use their Mezzanine platform to support their solution, East Africa Community etc. Vodacom has recently bought South African company with mHealth solution (GeoMedicine)-Mezanine platform.
- There is a need to look on simple technology like USSD and SMS which can be accessed by all mobile phones as a strategy for easier acceptance of the intervention.

- Try to look on the other sectors if there is similar solution that can be adopted or linked to ADDO operations.
- Work with other partners in the community of practice who might have direct linkage with ADDO such as FHI360 etc
- Explore the Mezzanine platform by talking to Vodacom Tanzania and see if it can used for ADDO
- Work with MoHSW from beginning so as to create good chance for scale-up , sustainability and adopted by MoHSW easily

Challenges

Some of the challenges on implementing mHealth projects are

- Getting the right linkage for outcomes and technology used.
- Look broader on the solution on intervention
- Integrating different technology to work as one solution.

Annex IV: mHealth Public Private Partnership Policy Framework

THE UNITED REPUBLIC OF TANZANIA

PRIME MINISTER'S OFFICE

NATIONAL PUBLIC PRIVATE PARTNERSHIP (PPP) POLICY

DAR ES SALAAM **NOVEMBER, 2009**

"Restricted Circulation"

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FOREWORD

The Government recognizes the role of private sector in bringing about socio-economic development through investments. Public-Private Partnership (PPP) frameworks provides important instrument for attracting investments. Indeed, Public-Private Partnerships (PPPs) have been identified as viable means to effectively address constraints of financing, management and maintenance of public goods and services. Additionally, PPPs can enable the Government to fulfill its responsibilities in efficient delivery of socio-economic goods and services by ensuring efficiency, effectiveness, accountability, quality and outreach of services.

The concept of PPP entails an arrangement between the public and private sector entities whereby the private entity renovates, constructs, operates, maintains, and/or manages a facility in whole or in part, in accordance with specified output specifications. The private entity assumes the associated risks for a significant period of time and in return, receives benefits and financial remuneration according to agreed terms. PPPs constitute a cooperative venture built on the synergy of expertise of each partner that best meets clearly defined public needs through the most appropriate allocation of resources, risks and rewards.

Most PPPs implemented in Tanzania are concession arrangements for running existing enterprises with limited provisions for rehabilitation and new investments. It is noteworthy that in the case of services, PPPs have been implemented successfully by Faith Based Organizations (FBOs) in education, health and water sectors for many years. However, in the case of other sectors, the performance has been mixed largely due to the complexity of such projects and lack of clear guidelines on the criteria for public and private sector partnership.

Private sector participation in areas previously treated as the monopoly of the public sector has made major contributions to increasing the pace of growth and development in many countries. In contemplating to utilize this instrument, Tanzania encounters a number of challenges including:

(i) Lack of comprehensive policy, legal and institutional frameworks that provide clear guidelines and procedures for development and implementation of PPPs;
(ii) Lack of realistic and comprehensive technical, socio-economic and commercial feasibility analysis which leads to poor project design;
(iii) Inadequate enabling environment which includes lack of long-term financing instruments and appropriate risk sharing mechanisms; and
(iv) Insufficient capacity negotiations, procurement, implementation and management of PPPs.

To achieve the goal of poverty reduction by 2025, Tanzania has chosen to initiate and implement measures for the realization of green revolution by adopting KILIMO KWANZA resolution. This is the development vehicle for modernizing agriculture and

thereby attaining economic transformation needed for sustained poverty reduction. Transformation of agriculture will depend on heavy investment in the development of capacity for delivery of PPPs to contribute to the attainment of Vision 2025. In this regard, the government recognizes that, greater private sector participation through PPPs in providing efficient, reliable and affordable socio-economic services, is fundamental for green revolution and broad based growth and sustainable poverty reduction. The creation and operation of an appropriate enabling environment to guide public and private sectors, donor community and other stakeholders in PPPs will go a long way in contributing to the achievement of our development goals. Furthermore, the national PPP Policy will serve as an important intervention to accelerate economic empowerment by ensuring that Tanzanians are adequately empowered in various PPPs interventions. In this spirit, a cross-section of various stakeholders have been involved in the development of this policy; and we look forward for the necessary collaboration for its implementation so that the noble goal of economic growth and eliminating poverty in Tanzania is achieved.

Hon. Mizengo P. Pinda (MP)

Prime Minister of the United Republic of Tanzania

LIST OF ABBREVIATIONS AND ACRONYMS

BBO	Buy-Build-Operate
BLT	Build-Lease-Transfer
BOO	Build-Own-Operate
BOOT	Build-Own-Operate-Transfer
BOT	Build-Operate-Transfer
CBOs	Community Based Organizations
DB	Design-Build
DBO	Design-Build-Operate
DBFO/M	Design-Build- Finance-Operate/Maintain
DBOM	Design-Build-Operate- Maintain
DPs	Development Partners
EIA	Environmental Impact Assessment
FBOs	Faith Based Organizations
FDI	Foreign Direct Investment
GDP	Gross Domestic Product
HBS	Household Budget Survey
IPTL	Independent Power Tanzania Limited
LGAs	Local Government Authorities
MDAs	Ministries, Departments and Agencies
M & E	Monitoring and Evaluation
NGOs	Non-Governmental Organizations
NSGRP	National Strategy for Growth and Reduction of Poverty
ODA	Official Development Assistance
PPA	Public Procurement Act
PPP(s)	Public-Private Partnership(s)
SSA	Sub-Saharan Africa
TISP	Transport Investment Sector Programme
TRL	Tanzania Railways Limited
USD	United States Dollar

PPP Key Concepts

Public-Private Partnerships (PPPs)

The concept of PPP entails an arrangement between public sector and private sector entities whereby the private entities renovate, construct, operate, maintain, and/or manage a facility in whole or in part in accordance with output specifications. The private entity assumes the associated risks for a significant period of time and in return, receives benefits/financial remunerations according to agreed terms; which can be in the form of tariffs or user charges. PPP is therefore a cooperative venture built on the expertise of each partner that best meets clearly defined public needs through the most appropriate allocation of resources, risks and rewards.

PPPs for Operation of Existing Public Assets: Service, Management, Leasing Contracts and Concessions

In a service contract, the government contracts with a private entity to provide services the government previously performed. A management contract defers from service contract in that the private entity is responsible for all aspects of operation and maintenance of the facility under contract. A Lease Contract provides an alternative arrangement whereby the government grants a private entity a lease hold interest in an asset and the private partner operates and maintains the assets in accordance with the terms of the lease. A third variant is a concession arrangement whereby the government grants private entity exclusive rights to provide, operate and maintain an asset over a long period of time in accordance with performance requirements set forth by government. The public sector retains ownership of original asset while the private operator retains ownership over any improvements made during contract period.

PPPs for Development and Operations of New Facilities

The core issue in this category is the development of new facility and its ownership over time. Focus is on design and construction of required new facilities, and hence emphasis on the terms: construction, operations and ownership. The resulting options include: Design and Build (DB); Design Build and Operate (DBO); Build, Operate and Transfer (BOT); Build, Lease and Transfer (BLT); Design, Build, Finance and Operate/Maintain (DBFO/M); Build, Own and Operate (BOO); and Buy, Build and Operate (BBO).

Design-Build (DB): Under this model, the government contracts with the private partner to design and build a facility in accordance with the requirements set by the government. After completing the facility, the government assumes responsibility for operating and maintaining the facility.

Design-Build-Operate (DBO): Under this model, the government contracts with the private partner to design and build a facility in accordance with the requirements set by the government. After completing the facility, the ownership of the facility remains with the public sector while the private partner operates the facility according to public performance requirements. The operator is also responsible for replacing the assets whose life has expired.

Design-Build-Operate- Maintain (DBOM): This combines the responsibilities of design-build procurements with the operations and maintenance of a facility for a specified period by private sector partner. At the end of that period, the facility is transferred back to the public sector. This model is also referred to Build-Operate-Transfer (BOT).

Build-Lease-Transfer (BLT): After building the asset, the concessionaire rents or leases it from Government and eventually transfers it again.

Design-Build- Finance-Operate/Maintain (DBFO or DBFM): Under this model, the private sector designs, builds, finances, operates/or maintains a new facility under a long term lease. At the end of the lease term, the facility is transferred to the public sector.

Build Own Operate (BOO): In this model, the government grants the right to finance, design, build, operate and maintain a project to a private entity, which retains ownership of the project. The private entity is not required to transfer the facility back to the government.

Build-Own-Operate-Transfer (BOOT): In this model, the government grants a franchise to a private partner to finance, design, build and operate a facility for a specified period of time. Ownership of the facility is transferred back to the public sector at the end of that period.

Buy-Build-Operate (BBO): BBO is a form of asset sale that includes a rehabilitation or expansion of an existing facility. The government sells the asset to the private sector entity, which then makes the improvements necessary to operate the facility in a profitable manner.

Unsolicited Bids: These are bids for which a private entity or an individual identifies and submits a proposal to the competent authority. The proposal is examined using defined criteria and if it qualifies it is designated as a PPP. Such bids emanate from the fact that potential PPPs may not always be known and tendered to the public for submission of bids.

Solicited Bids: These are bids for which a competent authority identifies for private participation and announces a request for proposal, leading to the selection of the successful bidder.

CHAPTER ONE

INTRODUCTION

1.1 The Review of Economic Performance

The Government of Tanzania has been implementing socio-economic reforms aimed at stimulating high rates of economic growth for the achievement of poverty reduction goals, resulting in substantial economic performance. The reforms include fiscal and monetary policies, privatization of state owned enterprises, trade liberalization, improvement of the business environment and strengthening of public expenditure management.

These reforms have resulted into encouraging performance of the economy. Tanzania has experienced steady recovery in growth from 2 percent per annum from 1990 - 1995; to 4 percent during the period 1995 - 2000. Macro-economic performance over the period 2001 – 2007 was impressive: the GDP growth during this period averaged 7.0 percent per annum; and inflation averaged 6.5 percent over the same period. Inflation rate for Tanzania was 7.2 percent in 2008, and rose to 12.1 percent by September, 2009. This was caused by rising fuel prices, drought, and the global financial crisis. However, Tanzania needs to sustain a high GDP growth rate of 10 percent or more in order to achieve the goals of the National Development Vision 2025.

Investments have also increased from 17.6 percent of GDP in 1995 to 26.3 percent in 2008; while savings as a percentage of GDP remained at a low level of 15.4 in 2008. However, credit to the private sector has maintained an upward trend from 4.6% of GDP in 2001 to 13.8% in 2007, but it remains low compared to other developing countries. Foreign Direct Investment (FDI) has increased from USD 150.86 million in 1995 to USD 717.7 million in 2008. This growth of FDI is still very small when compared to global and Sub –Saharan Africa (SSA) average, as well as in terms of the big demand for the attainment of robust economic growth. Challenges to attract more FDI include improving the business and investment climate, specifically, improving and expanding the transportation system (i.e roads, ports, and railways), utilities (power, water and sanitation services) and legal and regulatory framework as well as financial services. Other challenges include low value addition in productive and economic services sectors, other supply side constraints and market access.

As far as poverty trend is concerned, data from the HBS 2000/01 and 2007 show a limited decline in income poverty levels in all areas. According to the Poverty and Human Development Report (2009), the proportion of the population below the basic needs poverty line slightly declined from 35.7% to 33.6%, and the incidence of food poverty fell from 18.7% to 16.6%. Poverty is mainly a rural phenomenon whereby 37.6% of rural households live below the basic needs poverty line, compared with 24% of households in urban areas and 16.4% in Dar es Salaam.

To address these and other existing socio-economic challenges, Tanzania, like most other developing countries, is currently facing huge budgetary needs and therefore needs to address the constraint of a narrow domestic tax base so as to bridge the resource gap for implementing critical development needs. The investment requirements to attain high growth and reduce poverty are enormous and cannot be met from the public sector and Official Development Assistance (ODA) alone in a timely manner. Hence, participation of private capital is key to resolving the prevailing budgetary resource constraints. To sustain progressive socio-economic development, therefore, Tanzania requires innovative tools for financing development programmes in order to expand its production frontier as well as to improve economic competitiveness.

The Tanzania National Development Vision 2025 requires the Government to support and stimulate various actors participating in economic growth, by encouraging the private sector to undertake investments in infrastructure and services development. Such investments can be achieved through PPPs frameworks. Indeed, PPPs have proven to provide effective alternate source of financing, management and maintenance of public sector projects. Additionally, PPPs enable the Government to streamline its responsibilities in providing socio-economic goods and services, and this enhances efficiency, accountability, quality of service and wide outreach.

Given the absence of policy, PPPs have been implemented either by virtue of existing laws such as the Public Corporation Act of 1992 as amended by Act No. 16 of 1993, or through the mandate emanating from structural reform policies. This has created several challenges that have to be addressed by creating specific legislation and regulatory framework for PPPs.

1.2 Status of Public-Private Partnerships in Tanzania

Most PPPs in Tanzania are being undertaken through the privatization programme, and have mainly involved direct service delivery. New investments in physical infrastructure development using PPP basis are low, a few exceptions are in the power and communications sectors. There has been a limited success.

PPPs implemented in Tanzania are concession agreements for running existing enterprises with limited provisions for rehabilitation and new investments. Following adoption of liberalization policies, there has been an increased involvement of the private sector in investment and provision of services which previously were being provided by the Government. For example, in the case of services, PPPs have been implemented successfully by Faith Based Organizations (FBOs) in education, health and water sectors for many years. In the case of other sectors, the performance has been mixed largely due to the complexity of such undertakings and lack of clear guidelines on the criteria for public and private sector partnership.

1.3 Challenges facing PPPs in Tanzania

Private sector participation in areas previously treated as prerogatives of public sector has been of significant boost in many countries. While Tanzania is contemplating to utilize this avenue it has been faced with the following challenges:-

(i) Lack of comprehensive policy, legal and institutional frameworks that provide clear guidelines and procedures for development and implementation of PPPs;
(ii) Lack of analysis capacity to assess investment proposals leading to poor project designs and implementation;
(iii) Inadequate enabling environment which includes lack of long-term financing instruments and appropriate risk sharing mechanisms;
(iv) Insufficient capacity in negotiations, procurement, implementation and management of PPPs;
(v) Inadequate risk sharing mechanisms that often lead to the public sector carrying the full burden of risks;
(vi) Inadequate mechanisms for recovery of private investors' capital as well as impact on national development programmes that depend on the project's performance; and
(vii) Lack of public awareness about PPPs and their benefits.

1.4 Rationale, Benefits and Scope

1.4.1 Rationale

Tanzania needs to utilize all available options to attract increased private sector investments including PPPs. This is very essential in order to achieve the Millennium Development Goals, National Development Vision 2025 and the National Strategy for Growth and Reduction of Poverty (NSGRP) goals. Tanzania, like most other developing countries, is faced with huge budgetary constraints which needs to be addressed through greater participation of the private sector.

There are weaknesses in various stages of PPPs from procurement to implementation due to lack of appropriate policy guidelines and corresponding legal and institutional framework, hence the critical need for adopting a PPP policy.

1.4.2 Benefits of Public-Private Partnerships

The PPP arrangement is beneficial to a country and justifiable in view of the potential benefits that accrue to all parties. The potential benefits include:

(i) Facilitating creative and innovative approaches in stimulating private sector to engage in specific PPPs; with the government allowing bidders to compete on the basis of their ability to develop unique and creative approaches to the delivery of a required output;
(ii) Enhancing government's capacity to develop integrated solutions that effectively addresses public needs;

(iii) Reduced costs of implementation and realization of quality products and services attributable to economies of scale and operating efficiency;
(iv) Accessing technical and managerial expertise, financial resources and technology from the private sector;
(v) Facilitating large scale capital injections while reducing public debt and dependency on aid;
(vi) Better responsiveness to consumer needs and satisfaction of those needs;
(vii) Fostering economic growth by developing new investment opportunities and increasing provision of public goods and services; and
(viii) Ensuring fulfillment of the best interest of the public and private sector through an appropriate allocation of risks and returns.

1.4.3 The Scope

In Tanzania's case Public-Private Partnership is a multi-dimensional concept that should be pursued from the perspective of national macroeconomic and sectoral policies with emphasis on the following:

(i) Establishment of enabling Policy, Legal and Regulatory Framework for promotion of PPPs;
(ii) Implementation strategy outlining among others, activities, roles of stakeholders, resource requirements and time frame;
(iii) Operational guidelines and standards for the development of PPPs
(iv) Identification of the nature of private sector participation, extent and conditions for Government support and risk-sharing mechanisms;
(v) Mechanism for coordination and promotion of PPPs;
(vi) Identification of appropriate performance indicators, skills and competencies required to achieve PPPs in relation to best practice as well as feedback and control mechanisms; and
(vii) Monitoring and Evaluation system.

Participation in PPPs may take place in both productive and socio-economic services sectors including, but not limited to the following: Agriculture, Infrastructure, Manufacturing, Education, Health, Natural resources, Tourism, Energy, Mining, Water, Land development, Environment and solid waste management, Appropriate defense infrastructure, Sports, Communication, Information and Communication Technology (ICT), Trade, Entertainment and recreation and Irrigation.

CHAPTER TWO

VISION, MISSION, GOAL AND OBJECTIVES

Realisation of the National Development Vision 2025, requires achieving and sustaining a high rate of shared growth based on building a strong and competitive economy. The private sector has a key role in the achievement of this goal; and PPPs provide a powerful instrument among others in attaining this goal.

2.1 Vision

Efficient and sustainable PPPs for the delivery of reliable and affordable socio-economic goods and services.

2.2 Mission

Creating an enabling environment for promoting PPPs to achieve sustainable high and broad-based economic growth.

2.3 Goal

Contribute to national poverty reduction objective through delivery of competitive and sustainable PPPs.

2.4 Objectives

2.4.1 Main Objective

The main objective is to promote private sector participation in the provision of resources for PPPs enterprises in terms of investment capital, managerial skills and technology.

2.4.2 The Specific Objectives

i. To develop an enabling legal and institutional framework to guide investments in PPPs;
ii. To implement effective strategy showing specific obligations and rights for various stakeholders;
iii. To introduce fair, equitable, transparent, competitive and cost-effective procurement processes for PPPs;
iv. To adopt operational guidelines and criteria for PPPs;
v. To attract resources for development of PPPs;
vi. To develop institutional capacities for technical analysis and negotiation of PPPs and associated contracts; and
vii. To establish efficient and quality socio-economic PPPs.

CHAPTER THREE

POLICY ISSUES AND STATEMENTS

3.1 Issue: Comprehensive Policy, Legal and Institutional Frameworks for PPPs

Most sector policies underscore the role of public-private partnerships in addressing the need to stimulate higher rates of economic growth. This is due to increasing demand for financial and technical resources compared to available public resources needed to develop PPPs. Experience shows that effective legal and institutional framework for coordination and implementation of PPP Policy is crucial for mobilizing private sector resources. However, implementation of PPPs in Tanzania has not been very impressive although there has been few success stories particularly in the case of health and education sectors. This is caused by among others, lack of comprehensive policy, legal and institutional framework for PPPs. The big demand for development needs makes it imperative for Tanzania to adopt the PPP instrument in order to achieve its development goals.

Objective: To put in place an enabling policy, legal and institutional framework for PPPs.

Policy Statement: The Government in collaboration with Stakeholders will:

i. Enact new legislation, amend related existing laws and put in place regulations and operational guidelines for PPPs. The enabling environment will ensure transparent and clear administrative mechanisms;

ii. Establish a central PPP Coordination Unit under the Ministry responsible for investment and private sector development and a PPP finance Unit under Ministry responsible for finance**.**

It is important that clear linkages of roles with the implementing Ministries and appropriate bodies at the Local Government will be observed in PPP laws and relevant regulations.

3.2 Issue: Adequacy of Resources for Development and Maintenance of PPPs

Considering the limitation of public resources, there is a need to create enabling environment to mobilize private sector resources to augment public resources for development activities. The Private sector can bring in unique strengths and the required resources. The PPP approach provides a feasible option for governments in the developing countries, including Tanzania, to bridge the gap on resources required for socio-economic development.

Policy Objective

To put in place an enabling environment to generate and mobilize adequate financial and technical resources for PPPs.

Policy Statement:

Policy Statement: The Government in collaboration with Stakeholders will:

Put in place appropriate instruments to enable the private sector to mobilize resources for the development of PPPs.

3.3 Issue: Procurement Process for PPPs

Some PPPs have not been as successful as envisaged partly due to pitfalls in the procurement process. International best practice requires both solicited and unsolicited bids be subjected to competitive procurement processes with details available for public scrutiny and accountability. The emphasis of having a competitive procurement process is to ensure fair, equitable, transparent, competitive and cost-effective procurement. In addition, all parties should expose themselves to public scrutiny in order to avoid conflict of interests and to safeguard national interests.

Objective: To ensure PPPs are transparently and competitively procured.

Policy Statement: The Government in collaboration with Stakeholders will:

Ensure that the PPPs are procured through open competitive bidding process in accordance with the Public Procurement Act (PPA) No. 21 of 2004 and as may be amended from time to time. However, unsolicited bids will also be accepted and treated on case to case basis as provided for by relevant laws.

3.4 Issue: Feasibility of PPPs

Most PPPs undertaken so far were not subjected to comprehensive analysis of socio-economic viability and implications on government budgetary resources. International best practice requires that PPPs be subjected to rigorous technical, financial, economic and social feasibility. In all investment evaluation decisions and subsequent project procurement decisions, all parties should consider public interest matters such as accountability, environmental protection, health and safety, consumer rights, public access, equity and sustainability.

Projects qualifying for PPP should also be bankable and meet the value for money investment criteria. This is imperative considering that financiers will be reluctant to commit finances when a project entails high participation costs, unreasonable risk transfer or lengthy and complex contract negotiations. It is therefore critical to ensure that project developers/investors are assured of steady and predictable income streams over the lifetime of the project in order to guarantee service delivery.

Policy Statement: The Government in collaboration with other stakeholders will:

Put in place operational guidelines and procedures to ensure that PPPs are technically, financially, economically and socially viable. In addition, all parties will ensure that PPPs are bankable and provide value for money.

3.5 Issue: Negotiation of the PPPs and Approval

There are underlying challenges and risks in negotiation and approval processes for PPPs, and this call for well guided negotiation and approval system. The experience of PPPs implemented in the energy, minerals, water, and transport sectors shows that there have been underlying poor contractual arrangements. Therefore, there is a need to strengthen the existing system to safeguard the national goals, concerns and interests.

Policy Objective: To improve negotiations and approval processes for PPPs.

Policy Statement: The Government in collaboration with Stakeholders will:

Provide a comprehensive framework for negotiation and approval of PPPs.

3.6 Issue: Risk Allocation Mechanism for PPPs

Risk allocation is normally based on the "optimal risk allocation" by allocating to the party most capable of managing that particular risk. Efficient and optimal risk sharing is

an essential element in the design and implementation of PPPs. This is important to safeguard returns to all parties and ensure sustainability. The major reason to have appropriate risks sharing mechanism is that the parties involved in PPPs have differing interests and objectives. Therefore, a cost effective risk sharing mechanism is fundamental for PPPs' success.

Policy Objective:

To ensure equitable and optimal risk allocation for PPPs

Policy Statement: The Government in collaboration with Stakeholders will:

Provide necessary risk sharing framework in PPPs investments to ensure that risks are assigned to the party most suited to manage them; and that the risk allocation is cost-efficient and optimal.

3.7 Issue: Investment Opportunities and Promotion

Lack of a guideline for investors to exploit various PPP opportunities existing in different sectors of the economy hinders investments in PPPs. The guideline will provide guidance to private sector participation in PPPs to broaden investment opportunities, innovation and technology transfer. In addition, PPPs must be promoted for all parties concerned to benefit.

Policy Objective:

To widen the scope of investment opportunities and the promotion of PPPs.

Policy Statement: The Government in collaboration with Stakeholders will:

Formulate PPP guidelines to facilitate smooth implementation of PPPs.

3.8 Issue: Awareness Creation

PPP is a relatively new concept in Tanzania although it has been applied through divestiture of public enterprises. There is a need, therefore, of conducting awareness and sensitization campaigns on PPP aspects, in order to broaden and deepen its understanding among the public.

In this regard, awareness creation and sensitization on PPPs should be extended to all segments of society and stakeholders including government leaders, parliamentarians,

civil servants, investors, civil societies, private sector and public in general. This is one of means to stimulate participatory policy implementation, monitoring and evaluation.

Policy Objective:

To create public awareness to stakeholders on PPPs.

Policy Statement: The Government in collaboration with Stakeholders will:

Prepare a communication strategy for awareness creation and consensus building for acceptance of PPPs and their outcomes by all stakeholders including government leaders, parliamentarians, public officials, investors and the general public. In this process, all stakeholders will also be educated on the benefits of PPPs and associated costs and risks.

3.9 Issue: Capacity Building and Technological Transfer

The existing capacity to deal with PPPs is inadequate and therefore, there is a need for major capacity building programme in all areas of PPP designs and implementation. These areas include negotiations, feasibility, procurement, management and other implementation aspects. In addition, the development of PPPs is a complex task which requires diverse skills in areas including technical, economic, financial, legal and procurement disciplines. International best practices demonstrate the need to undertake capacity building measures for effective implementation of PPPs, encompassing also change of mindset to all parties and stakeholders. Human resources development is essential for those involved in PPPs given the fact that PPP practice is dynamic and needs latest best practice.

Parallel with efforts to enhance capacity building, technological transfer is needed for effective and efficient implementation of PPPs. Technology transfer in PPPs will be encouraged as the process of sharing skills, knowledge, designs and management of various PPP contracts and other implementation aspects. This will be encouraged to ensure that scientific and technological developments is accessible to a wider range of users.

Policy Objective

To ensure sustainable capacity building and technological transfer for PPPs.

Policy Statement: The Government in collaboration with Stakeholders will:

i. Design and implement a strategy for development of human resources in PPPs;
ii. Build on the experiences of successful PPPs implemented in Tanzania such as in health and education sectors, and also from international best practices; and
iii. Encourage interventions for technological transfer including promoting research and development (R&D) in PPPs.

3.10 Issue: Pricing for PPPs

Payment for services rendered to members of the public and other customers may take different forms depending on the nature of a rendered service. For example, tolls are common for use of PPP investments in roads, bridges and railway lines. In Tanzania's case, the affordability of user charges or fees to the majority of beneficiaries of services is an issue that will have to be given due consideration. A wide spectrum of all options for pricing of PPPs should be exploited to suit broad-based public interest.

Policy Objective

To provide an environment that ensures sustainable recovery of costs and affordable prices and tariffs.

Policy Statement: The Government in collaboration with Stakeholders will:

Adopt and implement PPPs pricing policy that provides suitable and sustainable pricing instruments.

3.11 Issue: PPPs Coverage in Marginal Areas

PPP interventions in both geographical and economical marginal areas pose a challenge. Due to locational factors, some regions are not commercially viable; and still other areas are not viable on economic grounds such as lower concentration of economic activities and lower incomes. PPPs may not be feasible in these areas mainly due to unique risks involved. In these special circumstances, the private sector is not attracted due to unfavorable business and investment environment.

Policy Objective

Extend special consideration to geographical and economic disadvantaged regions in promotion of PPPs.

Policy Statement: The Government in collaboration with Stakeholders will:

To the extent possible, put in place an enabling environment to attract PPPs in marginal areas.

3.12 Issue: Empowerment of citizens

PPPs undertaken so far have not adequately taken into consideration empowerment of citizens. The implementation of PPPs should take into consideration the National Empowerment Policy and other relevant policies to ensure empowerment of Tanzanians in all socio-economic aspects is adequately taken into consideration. There should be concerted efforts at all levels and by all parties involved to ensure that PPPs undertakings provide for necessary supporting environment to attract participation of local investors through inclusion in various socio-economic opportunities.

Policy Objective

Ensure that PPPs contribute to the economic empowerment of Tanzanians.

Policy Statement: The Government in collaboration with Stakeholders will:

Put in place enabling environment for PPPs to be an instrument of economic empowerment to support National Economic Empowerment Policy

CHAPTER FOUR

IMPLEMENTATION FRAMEWORK

4.1 Overview

Implementation of this policy will be undertaken through a win-win approach and philosophy for both private and public parties and other stakeholders. The Government in collaboration with other stakeholders will develop an Implementation Framework that will include and provide for enactment of new legislation, review of related legislation, adoption of appropriate regulations and operational guidelines.

4.2 Scope of Implementation Framework

The scope of the implementation framework to be developed will include the following:

(i) An implementation strategy defining and detailing activities to be implemented over a time-frame of an initial five years period, complete with functions and responsibilities of implementing institutions, timeframe and resource requirements;

(ii) An Institutional Framework for implementation including the Central Coordination Unit under the Ministry responsible for investment and private sector development and a PPP finance unit under the Ministry responsible for finance. Clear linkages of roles with project managers in the implementing Ministries and appropriate bodies at the Local Government will be observed;

(iii) A set of legislations to be reviewed and enacted to support implementation of PPPs;

(iv) A Provision for specific regulations and operational guidelines including:

- Formulation, Appraisal, Approval and Negotiation of PPPs;
- Enabling Environment for PPPs;
- PPP technical committees such as transaction advisors;
- Sources of finance for PPPs;
- Tendering procedures;
- Risk management;
- Monitoring and evaluation of PPPs;
- Public Accountability and Reporting requirements; and
- PPPs Investors' guide.

(v) A Communication Strategy for sensitization and raising awareness for members of the public, users of services on the PPPs that have been adopted.

4.3 PPPs Identification Process

PPPs can be initiated by private sector, individuals, public institutions or Non State Actors.

4.4 Roles and Functions of Various Stakeholders and Actors

(a) The Government

Will facilitate implementation of the PPPs by putting in place appropriate enabling environment. This includes favorable policies, implementation strategy, legal and institutional framework.

(b) The Private Sector

The Private Sector will take the leading role in identifying and implementing PPPs including carrying out of feasibility studies, mobilizing resources, risk sharing, monitoring and evaluation, and providing technical expertise and managerial skills.

(c) Non-State Actors

Other stakeholders include financial institutions, academic institutions, Non-Governmental Organizations (NGOs), CBOs, FBOs, employees, trade unions, environmentalists, political leaders, community groups, sector interest groups and public in general. This category is expected to support the implementation of PPPs through monitoring and evaluation, dissemination of information in order to create an understanding the nature and benefits of PPPs in their areas of interest.

4.5 Monitoring and Evaluation

PPPs should incorporate coherent oversight and regular review mechanisms. Performance targets should be easily measurable, incentives should be meaningful and, rewards and penalties effective. All PPPs shall be coordinated and monitored by the central coordinating Ministry, respective MDA's and LGA's.

The Government in collaboration with the private sector and Non-State Actors will have the following roles in M & E function:

(i) Preparation of Monitoring and Evaluation framework including performance indicators and benchmarks;
(ii) Preparation of mechanisms to review tariffs and payments in cases of unforeseen cost variations;
(iii) Setting up a time frame for evaluation;
and
(iv) Review of the policy and associated legislations as and when need arises.

Sustainable Drug Seller Initiative (SDSI) Program

Use of Mobile Technology to Improve ADDO Services

Data Collection Form for Stakeholders Mobile Operators

May, 2012

Information and invitation to participate in research: the use of mobile technology to improve ADDOs services

My name is ....., and I am an interviewer from ITIDO contracted by MSH to access the use of mobile technology to improve ADDO services. The results of this research will help to improve the ADDO services using mobile technology.

In order to do this we are visiting to ask the perception on the use of mobile phone and what the current practices on the use of mobile are.

We would greatly appreciate your co-operation in this exercise. The interview will only last a few minutes. The information obtained from this interview will be confidential, and is for the mentioned purposes only and Information from this exercise will be used for improving services.

Do you have any questions? Do you agree to participate? YES/NO

Basic Profile Information

Region:	.....	District:/ municipal	.....	Ward:	.....	Village:/s treet	.....
Organization Name:	.....			Interviewee:	.....		

Q No	Questions
Q1	What is your market penetration?
Q2	How can mobile application and platform such as mobile money can be linked with ADDO business?
Q3	Is there possibility to reduce cost associated with running mobile application to improve ADDO services in your network?
Q4	Is there a possibility to provide a toll free services that can be used to improve ADDO services? YES/NO
Q4.1	If Yes what basic requirements to establish?

Sustainable Drug Seller Initiative (SDSI) Program

Use of Mobile Technology to Improve ADDO Services

Data Collection Form for Stakeholders Organization implementing mHealth projects

May, 2012

Information and invitation to participate in research: the use of mobile technology to improve ADDOs services

My name is ....., and I am an interviewer from ITIDO contracted by MSH to access the use of mobile technology to improve ADDO services. The results of this research will help to improve the ADDO services using mobile technology.

In order to do this we are visiting to ask the perception on the use of mobile phone and what the current practices on the use of mobile are.

We would greatly appreciate your co-operation in this exercise. The interview will only last a few minutes. The information obtained from this interview will be confidential, and is for the mentioned purposes only and Information from this exercise will be used for improving services.

Do you have any questions? Do you agree to participate? YES/NO

Basic Profile Information

Region:	.....	District:/ municipal	.....	Ward:	.....	Village:/street	.....
Organization Name:	.....			Interviewee:	.....		

Q No	Questions
Q1	What mHealth Projects are you implementing?
Q2	In which area geographically are your projects running?
Q3	Which stage of implementation (pilot, national scale-up)?
Q4	What is the status (Completed, on-progress)?
Q5	Which health priority areas are your project addressing (RCH, MNCH, Supply Chain, HIV, and PMTCT, Malaria)?
Q6	Are there opportunities to link your mHealth Project(s) to initiatives like ADDO?
Q7	What Kind of technology are using on your mHealth projects?
Q8	What types of phone are using on your projects?
Q9	What challenges have you experience on the use of technology in your mHealth projects?
Q10	Are there any linkages of your mHealth project with other projects? Yes/no
Q10.1	If yes please mention some
Q10.2	If no why

Sustainable Drug Seller Initiative (SDSI) Program

Use of Mobile Technology to Improve ADDO Services

Data Collection Form for Stakeholders (Pharmacy Council, PSU, TFDA)

May, 2012

Information and invitation to participate in research: the use of mobile technology to improve ADDOs services

My name is ....., and I am an interviewer from ITIDO contracted by MSH to access the use of mobile technology to improve ADDO services. The results of this research will help to improve the ADDO services using mobile technology.

In order to do this we are visiting to ask the perception on the use of mobile phone and what the current practices on the use of mobile are.

We would greatly appreciate your co-operation in this exercise. The interview will only last a few minutes. The information obtained from this interview will be confidential, and is for the mentioned purposes only and Information from this exercise will be used for improving services.

Do you have any questions? Do you agree to participate? YES/NO

Basic Profile Information

Region:	.....	District:/ municipal	.....	Ward:	.....	Village:/street	.....
Organization Name:	.....			Interviewee:	.....		

Q No	Questions
Q1.	What is your perception on using mobile phone technologies to improve ADDO services?[perception should include challenges or benefits]
Q2.	Do you think mobile phone technologies can improve supervision and Monitoring of ADDOs? YES/NO
Q2.1	If Yes How?
Q2.2	If No why?
Q3	Do you send or collect information from ADDO? YES/NO
Q3.1	If yes How?
Q3.2	Do you think mobile phone can assist on this?
Q4	Are you implementing or supporting implementation of any mHealth Project in your organization? Yes/No (IF NO SKIP Q4.1)
Q4.1	If Yes which project?
Q5	Are there any existing infrastructures (equipments, staff and software) to support mHealth projects? YES/No (IF NO SKIP Q5.1 ,Q5.2)
Q5.1	If Yes which are they?
Q5.2	If Yes is there an opportunity to expand the infrastructure to accommodate additional mobile applications?
Q5.3	(SKIP THIS QUESTION IF YOU HAVE ANSWER THE PREVIOUS ONE) If No do you see the possibility in future to host mHealth infrastructure in your organization?
Q5.4	Are you willing to support funding for maintenance of such infrastructure if developed? YES/No

Q6	Do you think mobile phone technology can be used to assist in managing and improving ADDO services? YES/No
Q6.1	If Yes how?
Q6.2	If no why?
Q7	In your opinion what are the priority areas that mobile phone technology can be used to improve ADDO services?
Q8	Do you share regulatory and other key information to ADDOs? YES/No
Q8.1	If Yes how?
Q8.2	If no why?
Q8.3	How do you think mobile phone technology can assist?
Q9	Mobile technology can be used to improve the following ADDO activities(Please rank the mentioned activities in your order of priority [1,2,3,4,5] whereby by 1=Most important, 2=important, 3=moderate, 4=least important, 5=not important) • Continuing education, distance learning and test administration …….. • Drug registration information…….. • Drug product problem reporting……. • Adverse drug reaction reporting…….. • Supervion and monitoring…….. • Product availability…….. • Drug recall information(remove drug on market)…… • New product in the market……. • New guidelines…… • Product shortage in the market…….

Sustainable Drug Seller Initiative (SDSI) Program

Use of Mobile Technology to Improve ADDO Services

Data Collection Form for District and Region

May, 2012

Information and invitation to participate in research: the use of mobile technology to improve ADDOs services

My name is ....., and I am an interviewer from ITIDO contracted by MSH to access the use of mobile technology to improve ADDO services. The results of this research will help to improve the ADDO services using mobile technology.

In order to do this we are visiting to ask the perception on the use of mobile phone and what the current practices on the use of mobile are.

We would greatly appreciate your co-operation in this exercise. The interview will only last a few minutes. The information obtained from this interview will be confidential, and is for the mentioned purposes only and Information from this exercise will be used for improving services.

Do you have any questions? Do you agree to participate? YES/NO

Basic Profile Information

Region:	.....	District:/ municipal	.....	Ward:	.....	Village:/street	.....
				Interviewee:	.....		

Q No	Questions
Q1	What are the existing mHealth projects in your Area?
Q1.1	Which Organizations are implementing the mHealth Projects?
Q1.2	In which area geographically?
Q1.3	At which stage (pilot, national scale-up)?
Q1.4	What is the status (Completed, on-progress)?
Q1.5	Addressing which health priority areas (RCH, MNCH, Supply Chain, HIV, and PMTCT)?
Q2	Mobile technology can be used to improve the following ADDO activities(Please rank the mentioned activities in your order of priority [1,2,3,4,5] whereby by 1=Most important, 2=important, 3=moderate, 4=least important, 5=not important) • Reporting and information sharing ……. • Continuing education, distance learning and test administration …….. • Drug registration information…….. • Drug product problem reporting……. • Adverse drug reaction reporting……..
Q3.	What is your perception of using mobile phone technologies to improve ADDO business?
Q4.	What do you think are the benefits of using mobile phone technologies to improve ADDO business?
Q5.	Do you think mobile phone technologies can improve supervision and Monitoring of ADDOs? YES/NO
Q5.1	If Yes How? If No why?

Q6	How do you send and collect information from ADDOs?
Q6.1	Do you think mobile phone can assist on this?

Sustainable Drug Seller Initiative (SDSI) Program

Use of Mobile Technology to Improve ADDO Services

Data Collection Form for Whole Sellers

May, 2012

Information and invitation to participate in research: the use of mobile technology to improve ADDOs services

My name is ....., and I am an interviewer from ITIDO contracted by MSH to access the use of mobile technology to improve ADDO services. The results of this research will help to improve the ADDO services using mobile technology.

In order to do this we are visiting to ask the perception on the use of mobile phone and what the current practices on the use of mobile are.

We would greatly appreciate your co-operation in this exercise. The interview will only last a few minutes. The information obtained from this interview will be confidential, and is for the mentioned purposes only and Information from this exercise will be used for improving services.

Do you have any questions? Do you agree to participate? YES/NO

Basic Profile Information

Region:	.....	District:/ municipal	.....	Ward:	.....	Village:/street	.....
Name of Business:	.....			Owner Full Name:	.....		
Group	☐ Restricted whole seller		☐ Normal whole seller				

Q1	What are the types of mobile network operators available?
	☐ Tigo, ☐ Vodacom, ☐ Airtel, ☐ Zantel ☐ Others
Q2	What kinds of services are provided by mobile operators in this location?
	☐ mobile money, ☐ internet, ☐ call, ☐ sms ☐ Others
Q3	Do you have a mobile phone? YES/NO (IF NO SKIP Q3.1)
Q3.1	If Yes what type of phone?(***Observed by data collector[type, model]***)
Q4	Do you know how to use at least one function in mobile phone? YES/NO
Q4.1	If No why?
Q.4.1.1	Is there anyone who helps you to use your mobile phone?
Q4.2	if yes which functions do you use mostly
	☐ Game ☐ camera ☐ call, ☐ sms ☐ Others
Q4.3	if yes which services do you use mostly
	☐ mobile money, ☐ internet, ☐ social network ☐ Others
Q5	Do you use mobile phone for your business? YES/No
Q5.1	If No why?
Q5.2	If Yes WHAT are you using it for?

Q6	What is your perception on using mobile phone technology on your daily work and business?
Q7	What do you think are the benefits of using mobile technology in your business? (Probe on the following ***sending reports, calling , sms, mobile money, learning, product price information***)
Q8	How can mobile phone technology can be used to improve business? (Probe on the following ***sending reports, calling , sms, mobile money, learning, product price information)*** (IF NO SKIP Q8.1)
Q8.1	If YES what are they?
Q9	Using mobile technology to improve your business may have cost implication like SMS, Sending data, Change of handset, Are you willing to contribute on the Cost? YES/NO
Q9.1	If No how do you think cost can be covered?
Q10	What are the expected challenges of using mobile technology to improve business?
Q11	How can mobile phone technology can be used to improve business? (Probe on the following ***information sharing, reporting, payments***,)
Q12	Do you use mobile phone to share information with your colleague in business and higher authority? Yes / No
Q12.1	If no why?
Q12.2	If yes what type of information?
Q13	How do you get product price information from your main supplier?
Q14	How do you get your product from Main supplier?
	☐ By Ordering ☐ By Visit
Q14.1	If by ordering how?
Q14.2	What are the challenges related to ordering of supplies?
Q15	How do you update your clients on product information?

Q16	In order of priority How do you receive orders from your clients (check all applicable)? 1=mostly commonly , 2=commonly used, 3=moderately used -4=less commonly used , 5=not commonly used ☐ Physical visit, ☐ fax , ☐ mobile phone , ☐ email, ☐ others
Q17	How do you receive payments from your clients who visit physically? (Check all applicable)? 1=mostly commonly , 2=commonly used, 3=moderately used -4=less commonly used , 5=not commonly used ☐ Bank, ☐ mobile money, ☐ cash payments, ☐ check ☐ others
Q17.1	Are there any challenges in the payment process from the clients? YES /No (IF NO SKIP Q 17.2)
Q17.2	If yes please mention
Q18	For those clients who don't physically visit the shop direct how do you collect their order?
Q19	For those clients who don't physically visit the shop how do you receive their payments?
Q20	Are there ANY opportunities to inform your clients about changes in product prices and introduction of new products? YES/No
Q20.1	If yes how do you communicate with them?
Q21	Do you receive clients from ADDOs? YES / No/ I don't Know [only for normal wholesaler] (IF NO SKIP Q21.1)
Q21.1	If YES Approximately how many per week?
Q22	Do you serve clients from outside your Region? YES/ No / I don't' know (IF NO SKIP Q22.1)
Q22.1	If Yes from where?
Q22.2	What are the challenges do you encounter in dealing with distant client?
Q23	What is the volume of your business (approximate number of clients per day)?

Q24	Do you use computers in the business? YES/No (IF NO SKIP Q25)
Q24.1	If yes Home Internet Café Office other
Q25	Do you use electronic stock management system in your business? Yes/No
Q26	Do you have internet connection in your business premise? YES/No (IF NO SKIP Q26,Q27,Q27.1)
Q27	Do you use internet in business? YES/No
Q27.1	If yes for what purpose?[probe for email, search product , communicate with oversee supplier, communicate with clients etc]
Q28	Do you have knowledge on money transfer through mobile phone? YES/No (IF NO SKIP Q28.1,Q28.2,Q28.3)
Q28.1	If yes do you use mobile money transfer in your business? YES/NO (IF NO SKIP Q28.2,Q28.3)
Q28.2	If yes what are the benefits?
Q28.3	If Yes what are the challenges encountered?
Q28.4	If No do you see the possibility of using it? Yes / No
Q28.4.1	If Yes how?
Q28.4.2	If No why?
Q29	Mobile technology can be used to improve the following activities(Please rank the mentioned activities in your order of priority [1,2,3,4,5] whereby by 1=most important , 2=important, 3=moderately , 4=less important , 5=not important • Reporting and information sharing ……. • Drug registration information…….. • Drug product problem reporting……. • Update client on Product availability …… • Update to client on Product prices information ……. • Receiving orders from clients …… • Payments using different mobile money system……

Sustainable Drug Seller Initiative (SDSI) Program

Use of Mobile Technology to Improve ADDO Services

Data Collection Form for ADDO Owners and Dispenser

May, 2012

Information and invitation to participate in research: the use of mobile technology to improve ADDOs services

My name is ....., and I am an interviewer from ITIDO contracted by MSH to access the use of mobile technology to improve ADDO services. The results of this research will help to improve the ADDO services using mobile technology.

In order to do this we are visiting to ask the perception on the use of mobile phone and what the current practices on the use of mobile are.

We would greatly appreciate your co-operation in this exercise. The interview will only last a few minutes. The information obtained from this interview will be confidential, and is for the mentioned purposes only and Information from this exercise will be used for improving services.

Do you have any questions? Do you agree to participate? YES/NO

Basic Profile Information

Region:	.....	District:	.....	Ward:	.....	Village:	.....
ADDO Name:	.....			Full Name:	.....		
Group:	☐ ADDO owner		☐ ADDO Dispenser		☐ Both :Owner and dispenser		

Q1	What are the types of mobile network operators available?
	☐ Tigo, ☐ Vodacom, ☐ Airtel, ☐ Zantel ☐ Others
Q2	What kinds of services are provided by mobile operators in this location?
	☐ mobile money, ☐ internet, ☐ call, ☐ sms ☐ Others
Q3	Do you have a mobile phone? YES/NO (IF NO SKIP Q3.1) If yes ☐ Office ☐ Own
Q3.1	If Yes what type of phone?(***Observed by data collector[type, model]***)
Q4	Do you know how to use at least one function in mobile phone? YES/NO (If yes skip question no.4.1 &4.1.1)

Q4.1	If No why?
Q.4.1.1	Is there anyone who helps you to use your mobile phone?
Q4.2	if yes which functions do you use mostly
	☐ Game ☐ camera ☐ call, ☐ sms ☐ Others
Q2.1	if yes which services do you use mostly
	☐ mobile money, ☐ internet, ☐ social network ☐ Others Mobile banking for mobile money ☐ M-Pesa, ☐ Tigo Pesa, ☐ zyPesa, ☐ Airtel Money,
Q5	Do you use mobile phone for your ADDO business? YES/No
Q5.1	If No why?
Q5.2	If Yes WHAT are you using it for?
Q6	What is your perception on using mobile phone technology on your daily work and ADDO business?
Q7	What do you think are the benefits of using mobile technology in your ADDO business? (Probe on the following ***sending reports, calling , sms, mobile money, learning, product price information***)
Q8	Can mobile phone technology be used to improve ADDO business? Yes/No (Probe on the following ***sending reports, calling, sms, mobile money, learning, product price information*** …..) (IF NO SKIP Q8.1)
Q8.1	If YES how?
Q8.2	By using mobile technology can it improve ADDO business?
Q9	Using mobile technology to improve ADDO business may have cost implication like SMS, Sending data, Change of handset; Do you think the cost can be recovered from your business due to improved business? Yes/No
Q9.1	If yes Are you willing to contribute on the Cost?
Q9.2	If No how do you think cost can be covered?

Q10	What are the expected challenges of using mobile technology to improve ADDO business?
Q11	Do you send reports from your ADDO (to the health facility or district) Yes/No
Q11.1	If yes, in which way(s) do you use to send the reports? ☐ In person by Mail ☐ Mobile ☐ email ☐ Fax ☐ Others
Q11.2	If No is there anyone who collecting the reports?
Q12	Do you use mobile phone to share information with your colleague in ADDO business and higher authority? Yes / No
Q12.1	If yes what type of information?
Q12.2	If no why?
Q13	Would you like to use mobile phone for education purposes? Yes / No (IF NO SKIP Q13.1)
Q13.1	If Yes can you give examples
Q14	Are you registered with NHIF to provide medicines to the clients Yes/No (IF NO SKIP Q14.1, Q14.2,Q14.3)
Q14.1	If yes, how do you receive your claim reimbursements from NHIF?
Q14.2	If Yes What are the challenges related on NHIF reimbursements?
Q14.3	If Yes What is your opinion on the use of mobile technology to improve NHIF reimbursements?
Q15	How do you get product price information?
Q16	How do you purchase your product from supplier?
	☐ By Ordering ☐ By Visit ☐ Both Ordering and Visit (DATA COLLECTOR DOCUMENT BY WHICH MEANS FOR EACH CATEGORY)
Q16.1	Who are your main suppliers?
	☐ Restricted Whole seller ☐ Normal Whole sellers ☐ Others Please mention the name of your main supplier ……
Q17	How do you pay your suppliers?

	☐ Cash upon Visit ☐ Bank Transfer ☐ Mobile Money ☐ Others
	Why do you use the mentioned means?
Q18	Do you referral some patient to health facility? YES/NO (IF NO SKIP Q18.1)
Q18.1	If yes How do you do the referral?
Q18.2	Do you receive referral confirmation from health facility (counter-referral)? YES/No
Q18.3	Do you think mobile phone technology can improve referral system? YES/NO
Q19	Do you sometimes receive product which seems to be of poor quality? YES/NO If YES how do you check product quality?
Q19.1	Do you communicate the information to higher level? YES/NO
Q19.1.1	If Yes How?
Q19.1.2	If No why?
Q20	Mobile technology can be used to improve the following ADDO activities(Please rank the mentioned activities in your order of priority [1,2,3,4,5] whereby by 1=most important ,2=important ,3=moderate , 4=less important, 5=not important) • Reporting and information sharing ……. • Continuing education, distance learning and test administration …….. • Reimbursement by insurance companies (NHIF/ CHF)……. • Drug registration information…….. • Drug product problem reporting……. • Adverse drug reaction reporting…….. • Product availability checks…… • Product prices information checks……. • Ordering of supplies…… • Payments using different mobile money system…… • Referral management…….. • Supervision and Monitoring …….. •
Q21	If your current phone does not support the necessary required technology, are you able to buy a mobile phone costing TZS 105,000/- that will help you to improve your ADDO business? Yes/No [Specifically ADDO Owner]

Q22	In your day to day operation have ever held issues that need immediate consultation from higher level? YES/NO (IF NO SKIP Q22.1)
Q22.1	If YES What do you think are the issues you will need help for?
Q22.2	If ADDO information help-line is established to help communicate on the issues related to business and professional practice would you find it useful? Yes/ No
Q22.3	If Yes are you ready to meet the call cost?

Annex VI: References

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