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A Community Driven ICT Development Approach to Empower a Community in Tension (CiT)

Wesley Nitsckie
Department of Information Technology
Cape Peninsula University of Technology, South Africa
wesleynitsckie@gmail.com

Marlon Brandon Parker
Department of Information Technology
Cape Peninsula University of Technology, South Africa
parkerm@cput.ac.za

Abstract

The development of Information and Communication Technologies (ICT) solutions for community empowerment has seen an increased interest from various stakeholders. Such solutions present challenges specifically in the area of identifying the appropriate ICT community development approaches.

This paper suggests a community-driven approach for the development of an ICT solution to support a Community in Tension (CiT) due to the scourge of drug abuse amongst its citizens. The CiT used skills and resources available in the community as part of its development approach. The result of this collaboration was the Drug Advice Support (DAS) system which uses mobile and web technologies. DAS was co-created by the community who needed the system to aid them with the social issues they are facing due to the substance abuse problem. It concludes by indicating how the community-driven systems development approach could be used to aid other communities who require localised solutions.

Keywords: Community in Tension (CiT), ICT4D, Development Informatics, Empowerment, Milestone Development Life Cycle (MDLC)

Introduction

There is no doubt that Sub Saharan Africa is in the midst of a quiet revolution with regard to acquiring and adopting ICT as tools for change. The success stories for implementing ICT solutions to solve issues not only on a micro level but also a national level, has been evident. African and other developing countries (Muianga, et al, 2008) have problems associated with poverty, violence and civil war, disease, education, governance, unemployment and substance abuse. In order for developing countries to narrow the gap in the digital divide, innovative ways needs to be found to overcome some of these issues. This paper takes an in depth look at such a project and the community development approach it took to using ICT as an enabler.

A project called Drug Advice Support (DAS) is an example of a community ICT development initiative where mobile technologies are used to help persons seeking advice and support as well as frequently asked questions. It uses cost effective methods and technologies which are familiar to the community it strives to help.

ICT4D

The introduction of Information and Communication Technology for Development (ICT4D) has been growing in developing countries (Muianga, et al, 2008). The term 'ICT4D' was coined to describe ICT solutions for socioeconomic development. ICT4D is now becoming an interdisciplinary field in its own right, covering areas ranging from Internet connectivity to digital content and rights. But as the field has evolved, often outside mainstream development initiatives, debates within it have focused primarily on ICTs as 'magic bullet' solutions – technical exercises where access is the prime concern and the importance of capacity building is underplayed (Heeks, 2008).

According to the DelPHe African partnership workshop, ICT4D was defined by the Collective African partnership as the following (DelPHe, 2007):

> *"ICT4D is the concept of empowerment of citizens with knowledge through the use of Information and Communication Technology Tools. These technologies include computers, network infrastructure, internet and the world-wide-web. This acquisition of knowledge leads to individual wealth acquisition and national prosperity."*

In order to gain insight into what will ultimately result in acquisition of knowledge one has to look at the role players involved with making ICT4D initiatives happen. ICT4D projects may be implemented by international institutions, private companies, governments, non-governmental organisations or virtual organisations. The objectives for each of these stakeholders may differ which may be the cause of conflicts for such a project. These differences may be dangerous for the development of the community which it was intended for. Mansell (2006) emphasises that ICTs must be expected to bring new ambiguities to peoples lives. ICT projects for development often fail, as they are designed as technology-led service provision rather than development-led, people centred or people driven initiatives. The connections between ICT development and differences that it will make in peoples lives needs to be understood.

A common ICT4D project aims to address one or more of the following issues:

- Infrastructure: providing the necessary hardware, software, operating systems and internet connectivity.
- Capacity building and training in ICT: the maintenance of the infrastructure as well as providing support and training
- Digital services: access to information
- Regulation of the ICT Sector and digital rights
- Ethics and Social Contexts

The main beneficiaries of ICT4D are the community. Community, which was formerly organised

geographically discrete spaces serviced by common amenities. The wider definition however, is based around a group living in the same area or having the same interest or work in common (Parker & Wills, 2008). Communities could therefore benefit from ICT in the following ways:

- Facilitate the dissemination of Information and knowledge by allowing it flow across geographical boundaries, allowing remote locations to be networked into global sources of information and making data, information, knowledge and culture accessible to anyone.
- Facilitate new and cost effective ways of learning, undertaking collaborative work, find leisure, and market products and services.
- Facilitate social inclusion by providing marginalized groups with opportunities to overcome isolation, lack of voice and deprivation, For example software and interface improvements are bringing more people with disabilities online, and electronic commerce opportunities can enable remote communities to market their products on their own behalf.
- Facilitate improved governance by enabling government information to be readily harnessed and made available to the broader citizenry.
- Enable greater participation in the governance process by providing a channel through which informed citizens can make inputs into the decision making process.
- Facilitate the cost effective production of digital products.

Clearly the means by which these facilities are accessed and employed will vary based on the resources available to the respective community. The specific tools selected must be tailored to meet the needs and demands of the groups. For example geographical communities can benefit greatly from access to wide range of tools which may include community radio, community cable, email, discussion boards, web sites and other appropriate technologies.

Development Approaches

ICT4D approaches emphasise communication and information over technology as the primary factors shaping the relationship between the new media and community development. It thereby attempts to avoid those overly technical approaches which often present ICTs as a determining force for change and which give little opportunity for human choices, resistance, or mediation (Loaber & Keeble, 2008). Therefore development approaches and methodologies should be determined by the nature of the project and the resources available (Marks, 2002). A number of different development approaches are available. However, most development methodologies can be categorised as either waterfall or iterative.

The waterfall approach emphasizes a structured progression between defined phases. Each phase consists of a definite set of activities and deliverables that must be accomplished before the following phase can begin. In addition, different people are usually involved during each phase. Strengths of the waterfall approach include the ease of analyzing potential changes, the ability to coordinate large distributed teams, predictable budgets, and the relatively small amount of time required from subject matter experts. On the other hand, the weaknesses of the waterfall methodologies include: lack of flexibility, difficulty in predicting actual needs for the software, the loss of intangible knowledge between phases, discouragement of team cohesion, and the tendency to not discover design flaws until the testing phase (Martin, 2006).

Iterative methodologies include Extreme Programming and Rapid Application Development (RAD) approaches. The emphasis is on building a highly skilled and tightly knit team that stays with the project from beginning to end. The only formal project deliverables is the actual working software and the essential system documentation that is completed at the end of the project. This approach delivers the following benefits: rapid feedback from users increases the usability and quality of the application, early discovery of design flaws, ability to easily roll-out functionality in stages, a more motivated and productive team, and finally knowledge retention for the duration of the project. Offsetting the strengths are the following drawbacks to iterative methodologies: difficulty in coordinating large projects, the possibility for the project to never end, a tendency to not thoroughly document the system

after completion, and the difficulty in predicting exactly what features will be possible within a fixed time or dollar budget (Henderson-Sellers & Edwards, 1990).

In addition to the waterfall and iterative approaches Voigt et al (2004) find common patterns emerging from this kind of project management. The main problem with the waterfall model is the inflexible division of a project into separate stages, so that commitments are made early on, and it is difficult to react to changes in requirements. Iterations are expensive. This means that the waterfall model is likely to be unsuitable if requirements are not well understood or are likely to change in the course of the project (Sommerville, 2007). The emergence of agile methods which refers to a group of software development methodologies based on iterative development has been more common in project where the landscape changes constantly. Agile methods, in contrast, produce completely developed and tested features (but a very small subset of the whole) every few weeks. The emphasis is on obtaining the smallest workable piece of functionality to deliver business value early, and continually improving it and adding further functionality throughout the life of the project. If a project being delivered under "waterfall" is cancelled at any point up to the end, there is nothing to show for it beyond a huge resources bill. With Agile, being cancelled at any point will still leave the customer with some worthwhile code that has likely already been put into live operation. Some examples of agile methods include SCRUM (Schwaber, 2004), Dynamic System Development Method (DSDM) (Voigt, et al, 2004) and Feature Driven Development (FDD) (Palmer & Felsing, 2002).

Community Development ICT Approach

A community in where the wellbeing of citizens is being threatened is considered to be a Community in Tension (Parker & Wills, 2008). ICT provides solutions for such a community as a medium to solve some of the issues which causes the tension. One such issue is the substance abuse problem on the Cape Flats in the Western Cape region of South Africa. This community is swamped with the effects of substance abuse and gang activities. This presented an opportunity to develop an ICT solution as a tool for social change. The development of such a solution would require more than just skills to develop ICT applications but would also require strong links with the community plagued by the different social ills. This led to the emergence of a community development ICT approach which would include various stakeholders that could benefit from this solution.

Background to the Problem

South Africa has experienced an escalation of substance abuse during its transition from apartheid to democracy (Central Drug Authority, 2006; UNODC, 2004). Since 1991, the number of people treated for substance-related problems increased significantly (Parry et al, 2004). Treatment facilities cannot keep up with the influx of substance abuse cases (Myers et al,2007) therefore other ways of dealing with these issues need to be found.

The negative consequences of drug abuse affect not only individuals who abuse drugs but also their families and friends, various businesses, and government resources (NDIC, 2006). According to reports from the South African Police Services (SAPS), the number of drug related crime has increased dramatically over the past seven years (Haskin, 2008). Drug-related crime can disrupt neighbourhoods due to violence among drug dealers, threats to residents, and the crimes of the addicts themselves (SAPS, 2008). Teens between the ages of 12 and 17 who reported alcohol and illicit drug use also report higher violent behaviours than those who do not report alcohol and illicit drug use (NHSDU, 2001). In a report published by the South African Department of Transport it blames drivers driving under the influence of alcohol or drugs as the number one cause of fatal road accidents on South African roads (Statistics South Africa, 2005). Alcohol-related crimes (including the crime of drinking and driving) are not only committed by individuals who are high-risk drinkers and regularly drink to excess, but are also committed by individuals who occasionally drink at risky levels (Parry & Dewing, 2006). There is a growing body of research that links alcohol to violent crime, and in particular family violence and sexual violence. For example, a fifth of South African offenders arrested for rape reported that they were under the influence of alcohol at the time of the crime (World Health Organisation, 2005).

On the other hand mobile phones have become the primary form of telecommunication in both developed and developing countries (Bhatia et al., 2008). Moreover, the number of mobile phone subscribers in South Africa are more than 48 million (Claasen, 2008) which translates to almost 95% of the population having a mobile phone. Given the unprecedented growth of affordability and coverage of mobile telephony services, the mobile phone is now more accessible than the landline telephone (Bhatia, et al, 2008). These numbers are irrespective of class, race, age group or gender as is that of the substance abuse problems.

Instant Messaging (IM) has also made its way into mobile technology. Instant messaging is technology which provides communication between one or more participants over a network or the internet. Instant Messages conversations initially used text-based methods but have recently also added sound or voice, video and images. Extended functionality now includes file transfers, group chat and conference services. Instant Messaging, as opposed to email, happens in real-time. Instant messaging applications originally ran exclusively on the desktop but have since been adopted by mobile devices known as Mobile Instant Messaging (MIM). With these two emerging trends it was therefore considered to see how mobile devices could be used to support the fight against the scourge of substance abuse issues.

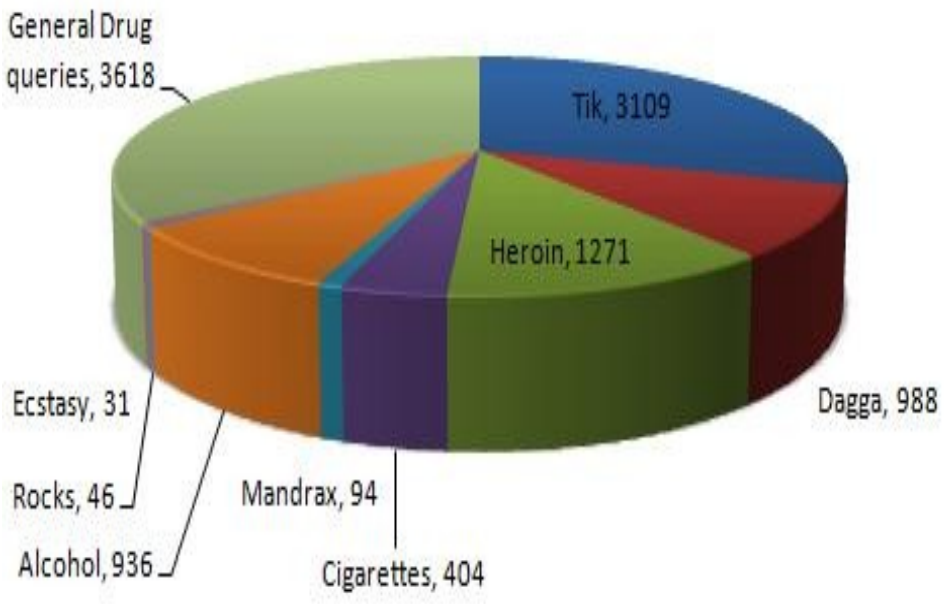
The Community Solution: Drug Advice Support (DAS)

The level of adoption of MIM and social networking by CiT's has created new opportunities to addressing the problem of substance abuse using these ICT tools and services. One such service called Drug Advice Support (DAS) has been developed to support persons seeking substance abuse advice and support. MIM is the basis on which DAS has been developed and designed.

The DAS platform provides advice, support and frequently asked questions (FAQs) for people affected by drug and substance abuse. The platform uses instant messaging and the internet to conduct its services. Although more than 98% (n=6250) of the service's subscribers are Mxit users, integration with other instant messaging platforms like GTalk, FaceBook Chat, AIM and MSN are also catered for using a standard protocol call Extensible Messaging and Presence Protocol (XMPP). A backend management interface was developed in conjunction with the CiT to manage conversations between advisors and persons seeking advice.

To date, more than 16 000 conversations took place over a period of 186 hours. Advisors have the capacity to help more people (n=27) in a 2 hour session than that of help-lines (n=4) (Impact Direct Ministries, 2009) thus relieving an overburdened health and social welfare sector (Harker et al, 2008). A breakdown of the conversations pertaining to drug and alcohol shown in Figure 1 supports the research done by Parry et al. (2008) where "Tik" and "Heroin" was the drug of choice amongst adolescents. The cost to the person seeking advice is less than ZAR 0.01 (1c) for a 2 hour session as this cost is directly related to amount of data (text) transferred.

Figure 1: Substance Abuse Conversations on DAS



The project was started by a community based organisation Impact Direct Ministries (IDM) who opted to use ICT to offer additional support and advice to people affected by substance abuse. The success of the service is due to the level of participation of the community affect by this scourge. Key to the development of the ICT solution was the approach in which the stakeholders engaged.

Community Development Approach

Key to this approach was to ensure that the community's needs would be met and that the community could sustain the project. The following guidelines and phases were followed by this Community in Tension to address the problems the citizens were facing:

Identification Phase:

The goal of this phase was to identify the stakeholders of the ICT solution (Who?), community context (Where?), needs of the community and the appropriate technologies in community context (What?).

1. The context

This CiT is situated on the Cape Flats of the Western Cape which remain, to one degree or another, poverty stricken therefore, the cost factor is a priority for this CiT. The decision taken around the use of MIM as a medium to conduct the DAS service was selected over SMS (Short Message Service) because of the difference in cost. With mobile data rates being on the decline, instant messaging applications costs as little as 1c per message (up to 1000 characters per message) compared to a text message (up to 190 characters per message) which cost between 35c to 80c (Vodacom.com, 2009).

Help-lines and traditional face-to-face counselling use queues to render its services. Queuing systems does not have a mechanism to filter high risk callers (King et al, 2006). Therefore it is imperative that the solution have the ability for users to have access to an advisor as soon they sign on to the service.

The service also needed to be usable. This is due to the volume of conversations an advisor has to manage in a given session. The solution must make it easy for advisors to navigate keeping the focus on the helping many people quickly.

2. The stakeholders

Engaging the community is ultimately about community-driven action. While balancing with the need to create a manageable process, community action should include as many different elements of a community as possible in order to be sustained. To create understanding between the CiT and the ICT developer some common ground needs to be found in order for the engagement to be successful. In order to bridge the digital and knowledge gap between the various stakeholders, the DAS project introduces the role of a champion. These champions are grounded in the community but have an outward focus for the implementation of ICT's still having the wellbeing of the community at heart. The person(s) well have to translate the needs of the CiT, formulate them into ideas and plans, then engage with the ICT developer as to the way forward. With the knowledge of both the community needs and knowledge of ICT's, the innovation must be driven by the champion Key to this engagement between the Community Champion and the ICT developer is the list of priorities. The negotiation around the features and upgrades will have to take place via this list.

3. Appropriate Technologies

With the social network phenomenon taking off in South Africa MIM has been at the forefront of this sub culture. Local companies like Mxit have already taken advantage of the social networking scene having over 12 million South African subscribers using their instant messaging application. This has given new ways of getting in touch with people on a personal level. It is also quick and easy for youth to connect with one another and signing up for this service is quick. These factors satisfied another need in that the solution is locally appropriate. The service needed to accessible. The combination of the use of mobile technology and IM makes it possible for not only for this CiT to have access to the service but also the rest of South Africa. It also uses the internet as a platform for advisors to provide support. The benefits of making the service web based means that advisors can access the service from any location thus eliminating the logistics of travelling to a specific location.

The development of the solution needs to cost effective. There is no 'off the shelf' ICT solution for the problem which this CiT wants to address. Making use of technologies which are already being used by the CiT and tapping into the Free and Open Source Software (FOSS) communities makes it possible for development cost to be minimal. The use of Web 2.0 principles makes reusing 'pieces' of the internet a viable option.

Planning Phase:

From the inception of DAS the need to produce tools facilitate the conversations between advisors and persons seeking advice. In the initial development of the system project planning was a mere after thought but as the product evolved so did the need for better planning. As with the design of the solution, the planning must be driven by the community champion and citizens. After the service appeared on national television in October 2008 and in many other media platforms the number of subscribers have been increasing week by week. As the number of users subscribing to the DAS service increased, the need for improved features to the solution also increased. The project opted to use agile methods as it focuses on breaking tasks into small increments with minimal planning, and don't directly involve long-term planning. The release of the features and improvements meant that testing could only really take place once the service is live. Planning around how the release cycles occur, systems testing and software development principles becomes critical in ensuring the system's availability. These features were also ranked by the community stakeholders using a Priority List (PL) from the most important to least important (See Figure 2).

Figure 2: Sample Priority List

Planning around which features and the nature of the feature is also prioritized by the CiT. The CiT agreed on using a list for prioritizing features and upgrades to the system. In fact, the list of priorities becomes the centre of engagement between the CiT and ICT developers. The planning around the timing of releases per feature for this case is short (one to two week cycles). These features may vary depending on the nature as some might not require development. Some might be associated with infrastructure or procedural like changing the time in which the service will be run. The prioritization of the features is determined by the CiT and not the ICT developer. The planning around how the ICT developer implements the feature is also determined by what was set out by the champions in the CiT.

Implementation/Testing/Deployment:

The use of agile methods for developing features was adopted. Agile methodologies regard ongoing changes to requirements as a natural, inescapable and desirable aspect of software development projects. These agile methods aim to reduce the cost of change. In traditional system development methods (such as Structured System and Design Methodology) the requirements for the system are determined at the beginning of the development project and often fixed from that point on. This means that the cost of changing the requirements at a later stage (a common feature of software engineering projects) will be high. Furthermore, the traditional use of the SDLC (Systems Development Life Cycle) process was deemed too tedious for this project as the amount of planning outweighs the time for development. DAS instead inherited the processes used for planning and controlling the creation of an information system but on a much smaller scale. Instead of the big bang systems development approach DAS uses milestones giving birth to the MDLC (Milestone Development Life Cycle). This development methodology stems from using agile methods under pinned by the SDLC which is locally

developed and designed to complete this project.

The execution of new or updated features requires a high level of understanding from the ICT developer in translating the needs of the CiT Champion into an ICT solution. The CiT champion is a representative of the community who understands technology and the needs of the community. They have to try to understand the business problem, and to give the CiT feedback about the problem, to improve the CiT's own understanding of his or her problem. For example, the CiT requires a monitoring feature, but after scrutiny from the ICT developer, the time frame is much longer than the CiT expected. The decision then lays with the CiT to either approve the plan or to shift the feature to a lower priority.

A focus on frequent delivery of products is also a requirement for the high pace in which the service is growing. By delivering products and features frequently from an early stage of the project, the product can be tested and reviewed where the test record and review document can be taken into account at the next iteration or phase. Once a product is ready for release, a rollback plan needs to be in place if any faults are encountered in the system. The rollback plan depends on the nature of the feature which is released but generally a complete copy of the system should be ready for use. This copy should run in parallel to the live system which could be seamlessly switched between the two at any time when there is system unavailability. When a feature has been released the CiT will test it and provide feedback. Based on the new feature other needs might surface. The CiT then has the option of reprioritizing the feature list as it wishes.

The stages of the MDLC (See Figure 3):

- **Community developed Priority List** [PL] (Features listed according to priority)
  The Priority List is main point of engagement between the CiT and ICT Developer. The formulation of the Priority List is completed by the community and communicated to the ICT developer. The process is managed by the community champion.
- **Design of Higher Priority Features on PL**
  The reordering of priorities is completed by the CiT as the need arises. This reordering process is managed by the community champions and consensus is reached based on the urgency of needs in the community. After each cycle is completed, this phase will be the point of departure for the new cycle as the CiT then has the option shuffle necessary task depending on the feedback from the Feedback Phase.
- **Development of Features**
  ICT or software developer design and develop the necessary tools laid out by the CiT in the PL. The specifications and details of the feature are discussed by the stakeholders for whom the feature is requested. Developers must adhere to principles adopted by the CiT for the tools and process which will be followed during this phase.
- **Internal testing**
  Initial developer testing is conducted after which the new development is further tested in a staging environment which is similar to the environment of the live one. At this stage the stakeholders are asked to test the requested feature. A mini cycle during this phase and the Development of Features might occur to fine tune the feature or fix any faults.
- **Deployment of features to Community**
  Releasing features to the live system requires testing, monitoring and a rollback procedure in the case of a malfunction. The role players involved with the deployment must all be aware of the procedures and have to be in constant communication at this crucial time.
- **Live Testing**
  This phase is where the citizens of the CiT will be testing various features and functionality during the use of the ICT solution.
- **Feedback of features**
  Formulating the results of the features and its effects needs to be documented. At this phase new ideas and feature may surface. The feedback can either be negative or positive. Depending on the next steps and the needs of the CiT, decisions can be made as to either reordering the PL (Design of Higher Priority Features Phase) or go onto the next feature on the list.
- **Recreation of PL**
  If the feature that was released to the CiT is not fulfilling its intended use then it will be

reallocated to the PL with high priority. The recreation of the PL is managed by the community champions in collaboration with the CiT.

- **Maintenance**
  Here the ICT solution would be maintained and updates managed to ensure maximum functionality.

The MDLC is an iterative process and these mini cycles continue as the ICT solution are developed and grown for the community.

Figure 3: Milestone Development Life Cycle

Sustainability/ Transfer

Most ICT4D initiatives are either funded by government agencies or industry. Sustainability thus becomes an important issue. Engaging the community around decision-making and action may involve providing experts and resources to help communities develop the necessary capacities and infrastructure to analyze situations, make decisions, and take action. This assistance may involve training in leadership, facilitating meetings and discussions, and other skills-building activities.

A key component of sustaining such a project is the way in which knowledge is transferred. It becomes the responsibility of all roles players involved to formally or informally train the next generation of community developers. One way in which DAS has gone about accomplishing this was by using a "bottom-up" approach for creating the necessary skills. Some of the advisors using the DAS system are

rehabilitated substance abusers themselves. They have since gone through extensive training in the use of ICT and have now progressed to using their gained skills to empower the community which they once were destroying. Some of the advisors are at a point where the system is fully managed by them, the result of constant mentoring from initiators of the project in an attempt to sustain it.

The decision to use Free and Open Source Software (FOSS) makes it possible for the open source community to contribute to the ongoing software development needs of the project. The FOSS community itself has overlapping principles of CiT. Some of these principles include the sharing of knowledge, skills and competence, attitudes and confidence, organisational ability and resources. The intellectual property of the system does not lie with one or a select few individuals but is shared amongst both by the FOSS community and the Community in Tension (CiT).

Capacity building is a key aspect to sustainability and this was achieved through identifying other champions in the community who could drive the system. These co-champions received training to empower them with the skills to sustain the operations of the project. The funding element came through attaching commercial channels to the DAS product by allowing other users to use the technology at a cost.

Partnerships with academia, government and industry were also important to ensure the sustainability of the DAS project. Through these partnerships endorsements, equipment and additional funding was acquired to support the project.

Suggested set of Guidelines for a community development ICT approach

The following guidelines shown in Table 1 were drafted from the DAS experience, research conducted as well as lessons learnt from other ICT4D projects.

Table 1: Guidelines for a community driven ICT approach

Identify and define the context in which development must occur	Community Driven Planning	Community Driven Development and Deployment	Sustainability
• Develop the scope, location, population and/or other parameters in which change need to occur • Define what needs to change • Identify the stakeholders for development to occur • Identify familiar ICT's already in place • Identify the risk factors and stumbling blocks which might affect the project • Identify the resources and skills available not only from the community but from all the other stakeholders eg. Software Developer skills, computer literacy skills of the CiT.	• Planning should be driven by the community • Planning should have the community needs at heart • Planning should not be too rigid but should rather evolve along with the growth of the project • Decide which procedures and methods will be followed • Plan how engagement will occur between the different stakeholders e.g. Project Management tools, Web Sharing Tools, Priority List	• Develop or adopt methods which will best suit the project • Identify champions for each of the stakeholders which would act as a translators between them • Innovation should be driven by the Community Champion • A focus on delivery of the product • Develop local methods to delivery which best suits the skills and resources available • Development must take place in the confines of the plans and principles laid out by the community	• A 'bottom-up' approach for sustainability must be community driven as the beneficiaries of ICT4D • The transfer of knowledge should take place from the project's inception • Intellectual property should reside with the community • Tap into other overlapping communities • Identify partners from government, industry or academia to ensure project sustainability

Other examples of ICT4D solutions which have used these guidelines include:

- *HIV/AIDS Counseling:* Being the number one cause of deaths in South Africa and the rest of Africa (Gandhi, et al, 2006), an instance called Positive Advice Support (PAS) has been implemented to help victims affected and infected by the HIV/AIDS pandemic.
- *Unemployment and Career Advice:* South Africa currently has an unemployment rate of 21%. Career Advice Support (CAS) is another service which could be offered to provide advice to university students, scholars and the general public seeking guidance.
- *Debt Counselling:* With the increase in the number of consumers being over indebted and an estimated 60% of approximate 19 million who require assistance in South Africa, this is another instance where Debt Breaker, in which the DAS solution has been adapted and implemented can provide assistance to people who are over-indebted.

Conclusion and Recommendations

The Western Cape and the rest of South Africa are in the midst of a substance abuse pandemic which is causing tension in communities. With counselling facilities that cannot cope with the influx of users and telephone help-lines are limited in its efforts to deal with the number of persons seeking advice and support. Queuing systems employed by help-lines and face-to-face counselling make it difficult to identify urgent cases. Mobile technologies have become the primary form of telecommunication for many South Africans. Moreover internet usage via mobile phones has surpassed that of the desktop

computer. The adoption of MIM onto mobile device meant that people can now communicate irrespective of device or platform. The use of MIM also meant that people could participate in social networks. Using technology which is familiar and accessible to communities provides a means for these tensions to be relieved. An example of the use of these technologies are demonstrated with the DAS project in which it uses mobile technologies to provide advice and support to persons affected by substance abuse.

However, implementing such initiatives requires a high learning curve. This paper endeavoured to share the experiences of adopting a community driven development approach to ICT solutions in a CiT. The approach focuses on innovation being driven by the community as opposed to being driven by technology. Customizing methodologies to suit the project and the resources available to the community and providing mechanisms for engagement between the different stakeholders were key elements to the development of the ICT solution. Identifying the context, community stakeholders and community champion proved to be important as part of the identification phase. Planning and development of an ICT4d project should be driven by the community as it's easier to get community adoption of the solution when involved with the development process. The introduction of a Milestone Development Life Cycle (MDLC) as part of the development approach is recommended with a number of short mini cycles being implemented based on a community stakeholder Priority List (PL). Sustainability of such projects is possible when the community is a key stakeholder and capacity development and empowerment being key elements during the development approach.

With many communities in need of specialised ICT solutions further research are required to see how such communities can be best supported with new innovative development approaches ensuring the maximum benefit to all the stakeholders.

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