



Best Practices of ICT for Development Projects

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Abstract

The Information and Communications Technologies for Development (ICT4D) sector includes all projects that use ICT as a tool to attain development goals such as poverty alleviation, or improved healthcare and education for a society. It is a relatively new field, whose projects are mostly rolled out in developing countries where ICT often marginalizes communities rather than strengthens them. This essay examines a number of ICT4D case studies and reports to identify a range of best practices for successful projects. It presents the findings according to pre-project, rollout and post-project phases and concludes with general lessons learned by ICT4D project teams.

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1.Introduction

Information and communications technologies (ICT) is a broad term which encompasses information channels such as the World Wide Web, communication channels such as email or the use of cell phones, and hardware and software used to generate and transmit information, such as computers, radios or TVs (NORAD, 2002).

ICT for Development (ICT4D) is any initiative or project that uses ICT as a tool for attaining development goals. All activities which strengthen a society's economy, government, education, health, environment, etc. fall under the umbrella of "development". A common ICT4D project is one which seeks to bridge the "digital divide" – the disparity between the "haves" and "have nots" in terms of ICT access and use. The stakeholders in ICT4D projects might include donor and relief agencies, non-government organisations (NGOs), private companies, or students and academia. The recipients or beneficiaries of a project, e.g. a school or community, also play a vital role in the human resources contributing to its success.

Many case studies have been conducted on ICT4D projects to identify best practices and lessons learned. This information is readily disseminated in order to support the success of future projects and constantly raise the bar in development efficacy. In this essay I've collated the findings of organisations that have evaluated ICT4D projects and created best practice case studies. The bulk of the case study material is taken from a joint initiative between Bridges.org (<http://www.bridges.org>) and the International Institute for Communication and Development (IICD) (<http://www.iicd.org>), namely the Case Study Series on ICT-Enabled Development in Africa (Bridges.org, 2003i). Both organisations support the effective use of ICT in developing countries.

By studying a number of effective ICT projects, Bridges.org has produced The 7 Habits of Highly Effective ICT-Enabled Development Initiatives (Bridges.org, 2002j). The habits, which are quoted extensively in this essay, form a framework against which the subject of each case study is gauged. They are as follows:

- 1.Implement and disseminate best practice.
- 2.Ensure ownership, get local buy-in, find a champion.

3. Do a needs assessment.
4. Set concrete goals and take small achievable steps.
5. Critically evaluate efforts, report back to clients and supporters, and adapt as needed.
6. Address key external challenges.
7. Make it sustainable.

Often in ICT4D projects one simply finds an Information Technology (IT) project set in a development environment. While there are many similarities to profit-driven IT projects, the development aspect often requires a change in mind-set. For example, the above habits certainly apply to the development of a Microsoft software product, but the dissemination of best practices would be done only within the company and the "champion" would be a product manager. An ICT4D project champion might be a school headmaster and the project lessons could eventually be published on various ICT4D websites. There is no close guarding of intellectual capital in the ICT4D sector. Instead project methods, deliverables and lessons are articulated and widely disseminated.

Feedback from projects offers valuable insights to others who are working in the same space. In the course of the essay I explore the best practices of ICT4D projects by looking at case study examples in the context of the high-level phases of a typical project, i.e. pre-project, rollout and post-project. By collating a varied range of research findings above and beyond those from Bridges.org, a number of other "success traits" are identified which may later become new "habits".

2.The Case Studies

A brief synopsis of each case study used in the essay is provided below:

Environmental Information Network of Ghana

The Environmental Information Network Project of Ghana uses ICT to link the databases of two national environmental agencies. The database is publicly available for free use. Local and international researchers, government agencies and other environmental organisations can use its information to support decision-making, intervention strategies, and awareness campaigns about environmental protection, and they can also contribute to this knowledge pool. The project is implemented by the Ghanaian Environmental Protection Agency and the Forestry Research Institute of Ghana (Bridges.org, 2003a).

Geekcorps of Ghana

Geekcorps Ghana is an initiative that has been implemented by Geekcorps International (Bridges.org, 2003b). This organisation locates volunteers with a high level of technological skill in the developed world, and matches them with small and medium-sized businesses in Accra, the capital of Ghana. The volunteers spend up to four months on-site with these businesses, assisting their growth and development via the transfer of technological skills and expertise.

The Kubatana Project of Zimbabwe

The Kubatana Project manages Kubatana.net, a website portal that provides Zimbabwean civil society organisations with an online presence and a platform to voice their concerns about human rights abuses in their country. The project also offers courses that teach civil society organisations to use ICTs to further their goals. The Kubatana Project was founded and implemented by two Zimbabwean women, Bev Clark and Brenda Burrell (Bridges.org, 2003c).

The SATELLIFE PDA Project (Africa)

The goal of the SATELLIFE PDA Project was to demonstrate the viability of handheld computers - also called Personal Digital Assistants or PDAs - for addressing the digital divide among health professionals working in Africa. This project was inspired and led by SATELLIFE, a non-profit 501(c) (3) organisation based in Massachusetts, USA. SATELLIFE promotes the use of appropriate, affordable technologies to link health professionals in developing countries to each other and to reliable sources of information, including by using

geostationary satellites, modem-to-modem telephone links, and the Internet. SATELLIFE worked on this project with a number of ground level partners, including the American Red Cross; Makerere University Medical School in Kampala, Uganda; HealthNet Uganda; Moi University Faculty of Health Sciences in Eldoret, Kenya; and the Indiana University Kenya Program (Bridges.org, 2003d).

The Judicial Inspectorate of Prisons' Online Reporting System (South Africa)

South Africa's Judicial Inspectorate of Prisons (JIP) - a watchdog body overseeing treatment of prisoners and prison conditions - uses an online system for reporting on prison issues and communicating with independent prison visitors and prison managers. The project is being implemented by JIP and the South African Department of Correctional Services (Bridges.org, 2003e).

The Tygerberg Children's Hospital and Rotary Telemedicine Project (South Africa)

The Tygerberg Children's Hospital and Rotary Telemedicine Project links specialists from Tygerberg Hospital in Cape Town to doctors at regional community or "district" hospitals to improve healthcare in rural areas. The initiative has assembled its own telemedicine system using off-the-shelf computer equipment and software that is more affordable than commercial telemedicine systems (Bridges.org, 2003f).

TB Treatment Compliance Service (South Africa)

Dr. David Green's Compliance Service uses the Short Message Service (SMS) to alert tuberculosis (TB) patients to take their medication. The initiative has led to a significant increase in the recovery rate of patients and could lead to savings for healthcare authorities. The service is implemented by Dr David Green, a qualified medical practitioner and consultant in Cape Town, through his company The Compliance Service (Bridges.org, 2003g).

BusyInternet Accra (Ghana)

BusyInternet (BI) Accra is the largest technology incubator in Africa. It provides businesses and the public with affordable, state-of-the-art ICT services, customer service, and a social environment that promotes technology use (Bridges.org, 2003h).

Kabissa.org (Africa)

Kabissa uses technology to strengthen non-profit organizations working to improve the lives of people in Africa. Kabissa has set up an Internet server dedicated to the needs of African non-profits which they can gain access to through an unbureaucratic application process. Besides providing standard Internet services (domain hosting, Web space, mailboxes, etc) the server is also being improved on a continual basis using open source applications to enable Kabissa to serve as an information resource and to make Kabissa (and the Internet as a whole) more accessible to African non-profits (International Institute for Communication and Development, 2002).

Government Portal (Colombia)

The government of Colombia made a serious commitment to e-government in 2000-01, mandating that all federal government agencies develop an Internet presence, and creating a unit in the Office of the President to assist and monitor their progress. The Colombian government also developed an Internet legal framework, investment plans, and strong relationships with the private sector in ICT-related projects. The centrepiece of this initiative is the State of Colombia Portal (World Bank, 2001).

Afronet (Zambia)

Afronet uses a website and email for the dissemination of human rights information and communication with their stakeholders. Internally they have PC's and access to email and the Internet to make their work more efficient. (Digital Opportunity, 2003a)

Indev (India Information Development Network)

The British Council has initiated Indev to address the problem of a lack of access to development information in India. Indev provides training workshops to development managers, using ICTs and the ItrainOnline website to facilitate understanding and the transfer of technological skill (Digital Opportunity, 2003b).

3. ICT4D Projects

Before exploring the high-level project phases, this brief chapter provides context to ICT4D projects in terms of how they are funded and the relationship with the sponsors.

Funding

In the commercial sector, projects are financed from their departmental budgets or from revenue generated by the project itself. Usually the case for a project's funding is based on business principles. ICT4D projects are mostly funded by grant making bodies, governments or corporations. The involvement of business in ICT4D is growing; an example is the commitment by Vivendi Universal – a global 1000 corporation – to spend at least 20% of its corporate budget on ICT4D projects in 2002 (Wong, 2002).

Project Sponsors and Measuring Project Success

ICT4D project funders are not entirely dissimilar to corporate project sponsors. Both the development and business sectors have matured considerably over the last decade with regard to project sponsorship; notably by becoming more demanding of their recipients. In the corporate world the sponsor might ask: what is the return on investment for this project? The development funder wants to know how a project will help to alleviate poverty in a specific community. The relationship is no longer one of giver and spender, but of an interested and expectant benefactor and an accountable recipient. According to The Shuttleworth Foundation newsletter, *Worth-E*, "capital spent on ... social development must be treated as an investment rather than the traditional concept of a charitable grant" (The Shuttleworth Foundation, 2003).

Measuring the success of ICT4D projects can be very difficult because of the broad impact that they often have. For example, when school children are trained in computer literacy the success is only exposed years later when they find a job. Bridges.org provides a checklist against which the success of ICT4D projects can be measured (Bridges.org, 2003k). There are other checklists and guides available and projects should try to meet as many of these points as possible.

When considering that funders today are under pressure to manage their social investments well, and that reports of corruption and misappropriation of funds in the non-profit sector are plentiful, projects need to be transparent and

accountable. Good ICT4D projects always display these qualities even while their "relative success or failure is likely to require some subtlety of reasoning" (Daly, 2001). It enables funders to see their investment.

4.Pre-project Best Practices

Before an ICT4D project is actually rolled-out, a number of key steps must be taken to put the project on a solid footing for implementation and continued operation.

Conduct a Needs Assessment

Conducting a needs assessment lays the foundation for project success. It enables the definition of the exact development problem to be addressed, provides scope for setting project goals and ensures that the solution is delivered in an appropriate way to the beneficiaries. For example, Indev only offer face-to-face training courses in rural India because "the target audience is not yet advanced enough to be self-motivated" to take online courses. Afronet knows that its Zambian Human Rights website is mostly visited by Zambians living abroad (based on Web server usage statistics). Thus to disseminate information to the local population they use a print magazine.

The following are examples of conducting needs assessments:

- The Environmental Information Network of Ghana held numerous round-table discussions with project stakeholders.
- Geekcorps of Ghana made assessment trips to a particular area or community.
- They also relied on input from contacts "close to the ground" or close to project beneficiaries.
- The Kubatana.net project in Zimbabwe used interviews and questionnaires to better understand their target audience.
- BusyInternet conducted market surveys in Accra before choosing it as a location for the project.

Sometimes a formal assessment is not necessary and a project is based on clear needs, e.g. the need for improved healthcare in South Africa drove the Tygerberg Children's Hospital and Rotary Telemedicine project as well as the TB Treatment Compliance Service.

Plan Thoroughly

Planning ensures that an ICT4D project has a clear vision and direction, defined roles and responsibilities for all stakeholders, adequate funding and sufficient

technical and administrative means (Accenture, Markle Foundation, United Nations Development Programme, 2001).

Often in the development sector planning begins with an application for funding in response to a Request for Proposal from a grant-making body. A funding application – similar to a project initiation document – succinctly presents a project to a funder and shows that sufficient preparation has been undertaken to suggest that the proposed solution is the best way to meet a specific need. Writing an application according to the format of a reputable funder, e.g. InfoDev of the World Bank, is a good way to think through all the main issues involved in an ICT4D project.

When planning for sustainability it is good to answer a number of questions such as: Will this project be able to fund itself in the future? Will the results of the project continue when the project ends? Can this project be applied in other areas or on a bigger scale? In order to be sustainable ICT4D projects should ideally be planned and managed using a business model. Omitting components such as a cost recovery system and a marketing strategy has been the downfall of certain Digital Villages in South Africa (Accenture, Markle Foundation, United Nations Development Programme, 2001). The solutions should be built to last and include "mechanisms for growth and replication into their operating models from the outset". While a project that engenders dependency on its funders should be avoided if possible, not all initiatives are financially sustainable in themselves. A project that requires constant funding, such as Kubutana.net, is still very successful because of accountability to its sponsors.

Set Concrete Goals

ICT4D projects that "clearly identify development goals ... are more likely to develop effective operating models and deliver tangible results" (Accenture, Markle Foundation, United Nations Development Programme, 2001). Setting concrete goals helps to keep a project's stakeholders focussed and provides a means for measuring its success.

Ensure Ownership, Get Local Buy-in and Find a Champion

On the ground initiatives must allow for direct participation and ownership by the beneficiaries (Accenture, Markle Foundation, United Nations Development Programme, 2001). For example, when using ICTs to disseminate information it is widely recognised that local content is favourable.

Management buy-in, or finding a local champion, is key to project success. The Indev team's greatest challenge isn't teaching NGOs how to build a website but rather convincing their managers of the importance of putting development information online.

Examples of garnering local support include:

- Geekcorps Ghana only selecting project beneficiaries who demonstrate commitment to the shared goals of their project.
- In the case of the Web-based Kubatana.net project, showing HTML page mock-ups to help participants to visualise the effort.
- Promoting the work of participating NGOs in local media, e.g. on Kubatana.net.
- The SATELLIFE project partnering with the Makerere University Faculty of Medicine in Uganda and appointing the Dean of the faculty as the local champion.

Identify Key External Challenges

Identifying the key challenges to a project means that contingency plans can be made to mitigate the risks. In the developing world external challenges range from unreliable Internet access and power supplies to bureaucratic red tape and lack of ICT awareness, as experienced by the Environmental Information Network project in Ghana.

5. Project Rollout Best Practices

Avoid Duplication of Efforts

Implementing best practice in ICT4D projects means doing thorough research first so that work is not duplicated: the founders of Kubatana.net first reviewed similar portals to get implementation ideas; Geekcorps studied other volunteer projects when putting together their strategy; the Environmental Information Network project found that it could partly build on an existing United Nations Environment Programme bibliographic database. By studying the efforts and lessons of similar initiatives projects, teams can avoid reinventing the wheel. To ensure that this happens, proposals to the InfoDev Grant are required to clearly demonstrate how previous experience in the sector will be leveraged for a project. This sentiment should be adopted by more grant-making bodies.

Take Small Achievable Steps

As part of its commitment to e-government, the Colombian government developed an information portal in 2001 to increase state accountability and transparency. The portal was a first and readily achievable step in the bigger strategy and demonstrates that "short terms projects that yield early results can generate positive momentum" (World Bank, 2001). Kabissa.org, which provides a support service to African non-profit organisations, concluded that it was better to focus on a limited number of key projects that built on existing successes than to try to do too much. Taking small achievable steps is the best way to keep a project team motivated and to sustain buy-in from locals or sponsors. The sooner that a beneficiary can see tangible results, the better.

Dr Green, whose innovative project uses SMS technology to remind TB patients to take their medication, first tested the reminder on his mother. The SMS Compliance Service now has major stakeholders and partners. This demonstrates the opportunities for creativity in developing countries.

Pilot First

The pilot, or prototype, first approach is summed up well in a report on ICT4D projects in Malaysia: "people will not take up ICT applications unless the potential of those applications can be demonstrated to them. The prototype application should be relatively small, focussed, quickly realised, and easily replicated." (Kemp, Mathison, Prasetyo, 2002).

Critically Evaluate Efforts and Adapt as Needed

Given that ICT4D projects are mostly rolled-out in developing countries and often as pilot projects, it is inevitable that changes and unforeseen outcomes occur. Perhaps new external challenges are discovered or initial assumptions are proved wrong. For a project to continually be evaluated there must be a culture of feedback from within the project team and from the beneficiaries. Some projects sponsors commission consultants to formally evaluate initiatives during their rollout. This can be costly but is an effective way to get an objective critique of a project's success and risks. The formative evaluations are used to improve the project during the course of its implementation.

Of course, feedback and identification of new challenges demand a response. Being able to adapt a project while it is running is one of the differentiating attributes of successful ICT4D project teams. For example, Geekcorps Ghana found that after training up local IT staff they would leave their companies in pursuit of higher salaries. In response to the deserting trainees, it now trains up two members of each beneficiary organisation to minimise the potential loss to the clients. SATELLIFE learned a number of key lessons through internal evaluations and an independent evaluation and introduced a number of appropriate changes during the project to overcome the identified challenges.

External challenges in developing countries often require inventive solutions. Learning how others have dealt with similar problems is a good way to quickly move beyond project obstacles.

Report Back to Clients and Supporters

Worth-E states that if "those who are giving do not know whether their investment in humanity is actually achieving its goals, the givers are left just as poor as those whom the intended investment has sidestepped" (The Shuttleworth Foundation, 2003). Geekcorps Ghana monitors projects on a bi-weekly basis through reports by volunteers. At the end of a project each volunteer completes a formal report and the client company where he or she volunteered provides an impact assessment.

Independent evaluations, internal project reports, surveys and questionnaires produce the material for feedback to clients and supporters.

6. Post-project Best Practices

Actual implementation is not the end of a project; there are a number of important activities that must be carried out to successfully close a project.

Final Project Evaluation

Once a project has been implemented a final evaluation needs to be conducted. The evaluation, which should result in a report, can be done by the project team or by an independent third party. All stakeholders of the project as well as beneficiaries should feed information into the evaluation. The evaluation assesses the outcomes of the project and measures its effectiveness in reaching the desired goals. Questions that should be considered include: How can the project offering be improved? What barriers were experienced that could have been anticipated? Do those barriers still exist? Is more funding required to remove them or steer the project in a more focussed direction?

A good question is also: What new opportunities did the project present? The SATELLIFE project, which set out to pilot the effectiveness of PDAs among medical practitioners in Africa, received excellent feedback from participants for different uses of the PDAs. The project also identified a whole new potential market for commercial firms to tap into.

Follow-up on Projects

All projects should be monitored even once the project teams have effectively extricated themselves from the community or area of the implementation. Geekcorps Ghana schedules additional follow-up impact surveys after the completion of a project to track results. Determining how beneficiaries cope once a project team is no longer with them is vital information. Lessons can be learned on how to alleviate the stress of them "flying solo".

Disseminate Information

The final project evaluation provides the input for dissemination of the lessons learned. It is absolutely vital that all ICT4D project teams contribute their experiences into the growing body of knowledge, both locally and internationally. The ICT4D sector is built on case studies – good and bad cases - and the dissemination of the information. An InfoDev research report (Daly, 2001) gives the following ways to disseminate information:

- participating in Internet fora, e.g. Listservs (interactive mailing lists), chat rooms and bulletin boards;
- posting materials onto the Web;
- contributing to formal publications such as books and journals;
- submitting reports to funding agencies;
- giving classes in a college or university;
- on-site demonstrations to visitors;
- and presenting papers in conferences, meetings, seminars, etc.

The report found that out of a number of grantees questioned about disseminating project information the two most common methods were posting information onto the Internet and presenting papers at meetings. ICT4D portals and knowledge bases such as The Development Gateway (<http://www.developmentgateway.org>) and The Digital Dividend Project Clearing House (<http://www.digitaldividend.org>) are examples of where information should be posted.

It is important to note that while lessons can be learned at any time during a project, it is sometimes necessary to wait for a period after a project has been completed before conducting formal evaluations and disseminating that information. The founder of Geekcorps has this to say about replicating the Ghana model in other parts of the world: "We have learned a ton about technology transfer in Ghana ... but it is unclear whether those lessons we have learned are Ghana-specific or whether they are applicable in other nations. I would like to get a more diverse base of experience so we can offer better guidance to the organisations that seek our help."

7. Lessons Learned

Case studies and ICT4D stories often include general lessons learned on the projects. This chapter highlights some of the important lessons for ICT4D projects in developing countries.

Build Effective Partnerships

The report *Digital Dividend or Digital Divide?* (Kemp, Mathison, Prasetyo, 2002) highlights that ICT4D projects need a broad range of skills including project management, community development, software development, Web design, IT training and sector expertise. Through building effective partnerships, the successful Malaysian case studies described in the report were able to complement their project teams with the necessary skills.

Kabissa, a small organisation with a limited budget, has been able to achieve large-scale results due to strong relationships with like-minded organisations that complement and support their activities.

Design for ICT Infrastructure Realities

It is important to provide solutions that are appropriate to the ICT infrastructure realities of the beneficiaries. For example, if a rural community is being served that has an erratic phone connection to a distant telecomm centre, providing information on a CD-ROM is preferable to building a Website for them (Kemp, Mathison, Prasetyo, 2002).

Facilitate the Participation of Specific Communities

An ICT4D project which is aimed at a specific community must engage that community in order to be successful. In Malaysia a number of projects facilitated the participation of community members through awareness-raising initiatives, forming steering committees that included community representatives, and training programmes led by community members. This kind of engagement mitigates the danger that projects for multi-community audiences develop applications which are not appropriate to *any* community (Kemp, Mathison, Prasetyo, 2002).

Prepare for Diversity

After serving the IT needs of the non-profit sector in Africa for a few years, Kabissa has concluded that "there is no 'typical' African organisation". The

geographic, economic, and political diversity of the continent means that its people and organisations have a wide range of IT experience and also varied expectations of IT-related projects. This diversity is found in all developing countries and ICT4D projects that aim to cater to a broad audience should, like Kabissa, offer a range of services and products. The target audience can then customise their own experience of the project.

Think Beyond the Project

While the volunteers of Geekcorps Ghana work with specific client companies, they have begun to explore working with business associations in the area to provide similar training and skills transfer to larger groups of businesses. Thus a project that began with a specific focus is flexible enough to explore new opportunities that have been identified. Often ICT4D projects bring very skilled professionals to remote places and all opportunities that allow them to transfer knowledge should be exploited.

Stay Focused

While it is important to think beyond a project it is equally important to not try to be "everything to everybody". The owners of the Kubatana.net portal believe that the greatest success of the project is its sole focus on Zimbabwe. The site's content is specific to that country and not an aggregation of readily available content from other countries. It is vital that a focussed vision, which is achievable and relevant, is initially set and maintained throughout an ICT4D project.

Provide Sufficient Training

The success of almost all ICT4D projects is determined by effective end-user training. When planning the Judicial Inspectorate of Prisons' online reporting system, the team thought that the lack of skills of the system's end-users would result in failure of the project. But by providing training the users were imparted skills that allowed them to effectively and efficiently use the system. Their apparent hunger for knowledge and resultant new skills helped to lift the motivation levels of all involved in the project. It is important to remember, though, that the method of teaching and content of the training modules must be appropriate to the audience.

Incentivize Involvement

In order to obtain buy-in for the Judicial Inspectorate of Prisons' online reporting system, the system was first used to speed up the payment of its end-users.

They were also given two hours of extra pay for submitting their invoices electronically. This is a great example of providing incentives to involve people in a project, especially when an IT application must first be used before the real benefits of using it can be seen.

Involve All Stakeholders and Manage Their Perceptions

The Tygerberg Children's Hospital and Rotary Telemedicine Project team learned the value of consulting with all stakeholders prior to the rollout of the solution. Apart from securing a level of buy-in from these people, the consultations provided an opportunity for them to verbalise their perceptions about the project. Most stakeholders were enthusiastic and eager to make use of the new facility but some "felt threatened by what was perceived as an intrusion by 'outside specialists' into their domain". The fears, while unfounded, had to be addressed. Another perception that needed to be dealt with, and one that seems to surface in many ICT4D projects in developing countries, was that the technology used is inappropriately costly for a country with limited health resources. The project team had to explain the relatively low cost per unit in comparison to other medical hardware.

Be Sensitive to Local Conditions and Limitations

The Digital Opportunity Initiative (DOI), a public private partnership, aims to identify the roles that ICT can play in fostering sustainable economic development and enhancing social equity. Based on lessons learned from a number of projects it recommends that "technology employed should be affordable, physically accessible, easy to use and maintain, and flexible enough to accommodate user demands for new services" (Accenture, Markle Foundation, United Nations Development Programme, 2001).

8. Conclusion

There have been many failures and successes in the ICT4D sector. Over time a body of knowledge and culture of information dissemination has developed, enabling those in the sector to improve the likelihood of project success by avoiding the mistakes, and building on the pioneering work, of others gone before. This essay has introduced some of the essential best practices of ICT4D projects. As new projects are implemented there will be new lessons learned and the body of knowledge will grow.

A key tenet of successful ICT4D projects is thorough planning. A well planned project has a solid foundation from which it can rollout. By examining the work of other similar projects in a particular field or location, the planning process can steer through potential pitfalls and ensure that all foreseeable challenges are identified and addressed.

Sustainability is essential. Successful projects do not simply use this popular buzzword to attract funding, but take the necessary actions to ensure that when a project ends the beneficiaries are not left dependent and, ultimately, powerless. Sustainability is about more than just the continued financing of an operation, it should also result in the empowerment and enablement of the project beneficiaries.

"Initiatives demonstrating a capacity to embrace adaptive and flexible solutions are more likely to be sustainable" (Accenture, Markle Foundation, United Nations Development Programme, 2001). Successful ICT4D projects are flexible enough to address new risks that are introduced during the rollout of a project, and similarly exploit newly presented opportunities.

Projects must be constantly evaluated – internally or externally – to ensure that they are successfully meeting the intended need. At the end of a project, the team must take stock and hold a number of debriefing sessions to vocalise the barriers experienced as well as lessons learned. All information is valuable, success stories as well as failures. What is of importance are the reasons for the project outcome.

Once the final evaluation report has been compiled, it must be disseminated as widely as possible. The Web is the obvious place for distribution on a macro-level,

while person-to-person communication is very effective on a smaller scale. Members of project teams should be available for presentations at local universities or meetings.

"Initiatives with the most impact have approached development problems in a holistic and coordinated way, not only through the provision of ICT" (Accenture, Markle Foundation, United Nations Development Programme, 2001). "ICT in development has the most impact when you mix it into the local cultural, political and social context in ways that are relevant to people's daily lives" (Bridges.org, 2003i). Projects that understand this and take time to appreciate the context of their beneficiaries and the broader goals that need to be achieved, are generally more flexible, targeted and successful.

9. Bibliography

Accenture, Markle Foundation, United Nations Development Programme, 2001, *Creating a Development Dynamic: Final Report of the Digital Opportunity Initiative*. Retrieved: September 1, 2003, from <http://www.opt-init.org/framework.html>.

Bridges.org , 2003a, *Environmental Information Network of Ghana*. Retrieved: September 1, 2003, from http://www.bridges.org/iicd_casestudies/ein/index.html.

Bridges.org , 2003b, *Geekcorps of Ghana*. Retrieved: September 1, 2003, from http://www.bridges.org/iicd_casestudies/geekcorps/index.html.

Bridges.org , 2003c, *The Kubatana Project of Zimbabwe*. Retrieved: September 1, 2003, from http://www.bridges.org/iicd_casestudies/kubatana/index.html.

Bridges.org , 2003d, *The SATELLIFE PDA Project*. Retrieved: September 1, 2003, from http://www.bridges.org/iicd_casestudies/satellife/index.html.

Bridges.org , 2003e, *The Judicial Inspectorate of Prisons' Online Reporting System*. Retrieved: September 1, 2003, from http://www.bridges.org/iicd_casestudies/prison_reporting/index.html.

Bridges.org , 2003f, *The Tygerberg Children's Hospital and Rotary Telemedicine Project*. Retrieved: September 1, 2003, from http://www.bridges.org/iicd_casestudies/Tygerberg_telemedicine/index.html.

Bridges.org , 2003g, *The Compliance Service Uses SMS Technology for TB Treatment*. Retrieved: September 1, 2003, from http://www.bridges.org/iicd_casestudies/compliance/index.html.

Bridges.org , 2003h, *BusyInternet Accra*. Retrieved: September 1, 2003, from http://www.bridges.org/iicd_casestudies/busy_internet/index.html.

Bridges.org , 2003i, *ICT-Enabled Development Case Studies Series: Africa*. Retrieved: September 1, 2003, from http://www.bridges.org/iicd_casestudies.

Bridges.org , 2002j, *The 7 Habits of Highly Effective ICT-Enabled Development Initiatives*. Retrieved: September 1, 2003, from http://www.bridges.org/iicd_casestudies/seven_habits.html.

Bridges.org , 2002k, *Real Access*. Retrieved: September 1, 2003, from <http://www.bridges.org/digitaldivide/realaccess.html>.

Daly, J. A., 2001, *The Information for Development Program (World Bank): Encouraging the Use of ICTs in Developing Countries*. Retrieved: September 1, 2003, from <http://www.infodev.org/library/WorkingPapers/dalywp.pdf>.

Digital Opportunity, 2003a, *Afronet*. Retrieved: September 1, 2003, from <http://www.digitalopportunity.org/article/view/64865/1/>.

Digital Opportunity, 2003b, *Indev*. Retrieved: September 1, 2003, from <http://www.digitalopportunity.org/article/view/64877/>.

International Institute for Communication and Development, 2002, *Kabissa - Space for change in Africa*. Retrieved: September 1, 2003, from http://www.iicd.org/base/story_read?id=4959.

Kemp, M., Mathison, S., Prasetyo, J., 2002, *Digital dividend or digital divide? A world of difference (The Foundation for Development Cooperation)*. Retrieved: September 1, 2003, from <http://www.fdc.org.au>.

Norwegian Agency for Development Cooperation (NORAD), 2002, *Information and Communication Technology in Development Cooperation: Guidelines from NORAD*. Retrieved: September 13, 2003, from <http://www.norad.no/norsk/files/Information%20and%20Communication%20Technology.pdf>

The Shuttleworth Foundation, 2003, *WORTH-e (The Shuttleworth Foundation Newsletter)*. Retrieved: August 28, 2003, from <http://www.tsf.org.za/worth-e.htm>.

World Bank, 2001, *Colombia's Government Portal*. Retrieved: September 1, 2003, from http://www1.worldbank.org/publicsector/egov/colombiaportal_cs.htm.

Wong, C.W., 2002, *CEOs urged to help close digital divide*. Retrieved: September 1, 2003, from <http://www.itnetcentral.com/article.asp?id=8435&icontent=10755>.