



The *Real Access / Real Impact* framework for improving the way that ICT is used in development

Concept note

bridges.org
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info@bridges.org
<http://www.bridges.org>

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This framework is the result of a truly collaborative effort among bridges.org staff members -- and many of our project partners -- over five years. It serves as a testimony to the vision and hard work of our team during 2000-2005, as seen in the variety of contexts where they devised, tested, and elaborated these ideas. We hope this proves to be a useful contribution to the field that others can build upon and use to bring the power of ICT to bear upon the problems of inequity in the world.

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I. Introduction to the Real Access/Real Impact Framework

The problems of the digital divide

Information and communications technology (ICT) can reward those who use it well with increased income, better quality of life, and cultural and political advantages. Those who do not use it are left behind, and ICT disparities exacerbate existing inequities. This so-called "digital divide" is a complex problem that manifests itself in different ways across countries and communities. It presents both practical and policy challenges. And solutions that work in developed countries cannot simply be transplanted to developing country environments, but must be based on an understanding of local needs and conditions.

During recent years, much attention has been focused on the issues of the digital divide and ICT as a key enabler of development, and world leaders have discussed the problem at length in conferences and reports. It is obsolete to talk about whether developing countries need healthcare, education, or other kinds of social and economic programs more than they need technology: the use of ICT for socio-economic development is now taken as a given. Regardless of whether government, business, or civil society drives development initiatives, their long-term success and sustainability depend on effective use of ICT to increase efficiency and improve service delivery.

But so far ICT is failing overall to deliver on this potential because many initiatives lack experience with ICT and fail to integrate and use it effectively in what they do. Development initiatives have failed to provide sustainable, replicable models for community ICT use, and often err with top-down approaches that are not grounded on the needs, interests, and active direction (or even participation) of local residents. Many government policies have failed to provide a coherent long-term plan for prosperity, and hindered efforts to address ICT disparities. The private sector has, on the whole, failed to see the developing world as a valuable market and deliver targeted products. And many individuals who could make a difference fail to do so, because they are discouraged by environments where innovation is not supported, and frequently hindered by bureaucracy. A realistic model is needed to break down the key obstacles to delivering ICT-enabled development at ground level, so they can be fully understood and tackled with a holistic approach.

A holistic approach

Tackling the digital divide is an enormous task, and no one group could solve the problem on its own. Bridges.org has examined the ICT-based development field and considered what works, and what does not work -- and why. It has built on its own experience and the thinking of a number of other organizations to design a holistic, integrated strategy it calls *Real Access/Real Impact (RA/RI)*. This framework sets out the determining factors in whether there is *Real Access* to ICT: access that goes beyond computers and connections so that technology use makes a *Real Impact* on socio-economic development. It is not about a specific technology application that is used in a certain way. Rather, the RA/RI framework offers a roadmap to the digital divide that can be used to improve the way that ICT is integrated into initiatives in healthcare, education, small business development, government services and other programs in the countries and communities that have the most to gain.

Financial measurements and organizational processes are established benchmarks for planning, monitoring and evaluating development projects; but these measurements often fall short in the ICT arena, insofar as they are insufficient to give a full understanding of the immeasurable benefits to society that ICT projects and policies bring, or external challenges they face. Gauging the number of computers and connections is relatively easy, but measuring the level of effective use of ICT is much more difficult. Traditional measurements also highlight project shortcomings, but usually fail to give specific guidance on what a project or policy process needs to do to improve.

The *Real Access/Real Impact* approach can be used as a basis for the analysis, measurement, and implementation of initiatives on all levels, from the ground to high-level policy deliberations. The RA/RI methodologies can be used prescriptively (as part of a project planning exercise), during a project (to inform decision-making along the way), or after-the-fact (to reflect on project successes and failures). They can also be used as the basis for technology research, or to inform policy-making processes. The RA/RI methodologies are widely applicable to efforts by communities, civil society organizations, development aid organizations, governments, and the business sector.

RA/RI provides a fresh angle on the issues, prompts ideas for moving forward, and ensures an all-embracing approach. RA/RI considers whether people have the capacity to use ICT and whether they actually are using it, including analysis of the underlying factors that affect whether they do (or do not) and why. The RA/RI framework helps initiatives plan effectively and take concrete steps for implementing ICT as part of what they do, highlights the strengths of ICT projects and policies, and provides direction for future improvements.

Two methodologies

The *Real Access/Real Impact* framework is comprised of two methodologies:

I. The **Real Access criteria** are used to frame the analysis of all issues surrounding ICT access and use, including the "soft" aspects that are often overlooked. They are designed to anticipate or detect the reasons that ICT development initiatives, government e-strategies, or grassroots projects fail to achieve their goals or highlight how and why these projects succeed. ICT must be physically accessible, appropriate to local conditions, and affordable. People must understand the benefits of ICT, and have the training and skills necessary to use it. Locally relevant content and services must be available, and ICT must be integrated into people's daily routines without being a burden. The effects of socio-cultural factors must be addressed so they do not inhibit widespread ICT use, and people must trust ICT in terms of security, privacy and cybercrime. Legal and regulatory frameworks must not limit the effective use of ICT, the local economic environment must be able to sustain its use, and national macro-economic policy must be conducive to widespread ICT use. Governments must have the political will to drive change, and the public must support government strategies to promote ICT use.

II. Sometimes initiatives address substantive issues effectively, but still fall short because of poor project administration. So a part of the RA/RI framework also recommends the **12 Habits of Highly Effective ICT-Enabled Development Initiatives**, which look at the application of best practice in ICT project management. The 12 Habits advise projects to: (1) Start by doing some homework. Look at what has worked and what has not worked, study good practices in the area, and build on what you have learned; (2) Begin with a needs assessment; (3) Make it local: ensure local ownership, get local buy-in, work with a local champion, and be context specific; (4) Engage a local problem-solver with some degree of responsibility, and involve them sufficiently so they can identify and address problems as they arise; (5) Form sound partnerships and collaborations, and be good partners and collaborators; (6) Set concrete goals and take small achievable steps. Be realistic about outputs and timelines; (7) Found your initiative on technology-neutral concepts so it can be adapted as needed to accommodate technology change over time; (8) Involve groups that are traditionally excluded on the basis of age, gender, race or religion; (9) Identify and understand the external challenges you face, and take practical steps to address them; (10) Monitor and critically evaluate your efforts with effective tools, report back to your clients and supporters, and adapt your approach as needed; (11) Make your initiative sustainable over the long term -- either by bringing in sufficient income to be self-sustaining, or by delivering on a social mission so effectively that it is worthy of donor funding; (12) Widely disseminate information on what you are doing and what you have learned so others can avoid your mistakes and build on your efforts.

II. The Real Access Criteria

There are twelve inter-related Real Access criteria that can be used as part of a project or policy planning initiative, or evaluation exercise. Each one is set out below, with a short description and a set of example questions that can help frame thinking about how to apply the criteria to ICT projects and policies. The Real Access criteria are:

(1) Physical access to technology

The first step is to consider whether ICT is available and physically accessible to the people and organizations involved with or affected by the project or policy. Looking at the technology itself is obvious, including the availability of hardware, software, telecommunications networks, and Internet services. But in developing countries, it is also important to think very broadly and consider geographic, environmental and contextual challenges that can affect physical access to ICT. For example, basic infrastructure requirements, such as electricity and roads, often raise critical issues affecting physical access to technology. People with disabilities -- such as the blind, deaf or physically handicapped -- face particular barriers to technology access, and inclusion of these groups may require special attention.

Example questions for applying this criterion: Is technology available and physically accessible to people and organizations? What technology is available? What factors affect physical access to technology in general? What factors affect the physical access to technology in the context of this project/policy? What can the ICT project/policy do to help ensure that technology is available and physically accessible to people and organizations?

(2) Appropriateness of technology

Once physical access to ICT is determined, it follows that the technology used in projects and policies must be appropriate to local needs and conditions. Appropriateness can be gauged in terms of power requirements, security, environmental conditions, and other aspects of the local situation. The technical specifications and usability of the ICT targeted in the project or policy must also be suitable to how people and organizations need and want to put technology to use. A wide variety of technologies are now available, and it is important to think broadly about options for appropriate technology. For example, desktop computers and high-bandwidth connections are often the first things that come to mind when people envision an ICT project, but they are often not the best technology choices in the context of local realities of developing countries. The majority of people and organizations in poor communities lack electricity or a secure location for desktop computers, making them inappropriate for many ICT projects and policies. More appropriate ICT options may include handheld computers and public access points, as well as innovative uses of cellular telephones, television, and radio for Internet access. Solar and other alternative power sources, together with battery-powered portable devices and wireless connectivity offer greater possibilities for rural access.

Example questions for applying this criterion: Is the technology appropriate to the local needs and conditions of the community? How do people need and want to put technology to use? What can the project/policy do to help ensure that ICT is appropriate to these needs and conditions of the communities involved in or affected by it? What can the ICT project/policy do to help ensure that technology is appropriate to local needs and conditions of the community? How could technology that works well in developed countries be modified to be more suitable in developing countries? Have all existing technology options been assessed and has the most appropriate solution for the specific policy/project objective been selected?

(3) Affordability of technology and technology use

Once it is determined that appropriate ICT is available, the next question is whether people and organizations can afford to obtain or access it, and use it in their work and their lives. The affordability problem is, of course, tied directly to the general conditions of poverty. At a macro level, significant infrastructure investment is needed to bring technology to communities that lack electricity, access to telephone networks, or computer equipment. And in very poor communities, which often need basic necessities such as food, healthcare, and sanitation, striking the right balance between technology and other priorities is required. At the micro level, expensive hardware and the high cost of telecommunications and Internet connectivity in developing countries are primary barriers to the affordability of ICT, especially in remote areas. For example, a computer costs the equivalent of a year's average income for the majority of people in developing countries, and Internet users in many developing countries pay higher connectivity charges than their counterparts in the developed world. Affordability is an immediate problem, which shifts to a question of sustainability in the long-term. Policy-makers and development practitioners need to make realistic choices about introducing costly ICT services in poor communities, and may be better off integrating creative uses of inexpensive technologies into development efforts. One option for developing nations and low-income communities is public access points, which provide low-cost or even free computer and Internet access, but project or policy planning must account for subsidizing the costs of providing these services over the long-term. Telecommunications liberalization and technology convergence can also bring down costs and make many technologies more widely affordable in different contexts.

Example questions for applying this criterion: Are the technologies and ICT services affordable for local people to obtain, access and use? What does "affordable" mean in the context of the community or target group? What can the ICT project/policy do to help ensure that technologies and technology use are affordable for local people and organizations? Is the project/policy planning for technology affordability in the short-term, and sustainability in the long-term?

(4) Human capacity and training

Any technology will be insufficient if people do not understand how to put it to effective use as part of their lives or their work, either because they are not trained to use it, or they cannot imagine the possibilities for how they could use it. People will be encouraged to use ICT only when it is apparent to them that it will have a positive impact on their daily lives. Further, it is essential that people understand the broader potential for technology, so that users are empowered to innovate for themselves and use technology in creative ways that may not have been envisioned by the project or policy. In this way ICT can be an enabler of broad skills development; not only related directly to the use of ICT, but as a powerful tool for learning. At one level, employees in schools, libraries, hospitals, civil society organizations, governments and businesses need the basic technical skills to use ICT in their daily work. It is equally important that high-level technical support skills are available to ensure that ICT can be set-up and maintained. The lack of technical support is a major obstacle to technology use in many developing countries, and skills transfer should be an element of any development project involving ICT. Illiteracy is also an important barrier to ICT use in many countries, but there are innovative applications of technologies that can help with this. For example, voice and image-based technologies can help side step the need for reading and writing skills as prerequisites to ICT use.

Example questions for applying this criterion: Do people have the training and skills necessary to use technology effectively? Do they understand how to use technology? Can they envision other potential uses for the technology in their lives or work? What training is already available in the community or target groups involved? Is the available training

well suited to the needs of the project/policy? What can the ICT project/policy do to help ensure that people and organizations understand technology and its potential uses? What can the ICT project/policy do to help ensure that people and organizations get the training they need to use technology effectively, especially where no training is currently available?

(5) Locally relevant content, applications, and services

In order for ICT to be meaningful in the daily lives and work of people and organizations, there must be locally relevant content, applications, and services available, which can be accessed through ICT. In the context of socio-economic development programs, local relevance means things like educational materials, health information, environmental data, or agricultural extension services that are useful to people in the communities served. It could also mean locally relevant applications, such as software or computerized systems for administration of patient records, drug distribution management, small business tax calculations, or literacy training. Government information and services provided to citizens are a great example of local content that can be adapted for widespread distribution through the electronic environment as e-government services develop. Another example of locally relevant content disseminated effectively through ICT is basic healthcare information, which can reach vast numbers of people via radio and television in poor and rural areas where there are few medical facilities. At a personal level, the use of ICT for communication with loved ones, business colleagues, or customers, can be a considerable motivating factor to encourage new users to try ICT. But regardless of the content, application, or service, its availability in local languages is critical if ICT is to be relevant and useful to the communities and groups targeted by ICT projects or policies.

Example questions for applying this criterion: Are there locally relevant content, applications, and services that people and organizations can access and use through ICT? Are content, applications, and services available in local languages? What content, applications, and services are "locally relevant" in the context of the communities or target groups affected by the ICT project/policy? What can the ICT project/policy do to ensure that locally relevant content, applications, and services are available to people and organizations? Is the project/policy creating or improving locally relevant content, applications, and services?

(6) Integration into daily routines

Without the many conveniences enjoyed by developed countries and well-off communities, people in developing countries and disadvantaged communities often face a variety of burdens in their daily lives. Day-to-day tasks that are simple for privileged groups -- such as cooking or cleaning -- are often time-consuming and inconvenient for the less advantaged. And in a work environment, basic aspects of teaching, hospital administration, government service provision, and other jobs often take longer where modern conveniences are unavailable. Even the journey to work, school, or the local hospital can be a burden to many, when public transportation is poor, roads are bad, and distances are long. In this context, integrating technology use into peoples' daily routines is a major hurdle for many ICT for development initiatives. Yet this seemingly obvious issue is often overlooked by ICT projects and policies, where technology use becomes an additional burden to the already over-burdened lives of people in developing countries, and this proves to be a factor that limits widespread technology uptake. People are unlikely to use technology if it involves efforts that outweigh the benefits. For example, where people have to travel out of their way to use telephones or computers, these technologies becomes less useful. Or when teachers are required to take a computer course outside of the school day in order to get training to use computers in their classrooms, they may be less likely to participate in ICT projects. Moreover, as in developed countries, people in developing countries will usually not use technology for

technology's sake, but they will find ways to integrate ICT use into their lives and work when it helps them improve the way they do something that they need to do anyway.

Example questions for applying this criterion: Is technology use an additional burden to the lives and work of people and organizations already burdened by daily tasks, or is it integrated into their daily routines? What are the realities of daily life and work in the communities and groups targeted by the ICT project/policy? How can ICT use be adapted within these local realities? What can the ICT project/policy do to help ensure that technology use is integrated into daily routines and does not become an additional burden to people's lives and work?

(7) Socio-cultural factors

The likelihood of living in poverty is far greater for groups who suffer discrimination. Across the globe, people are prevented from full participation in their societies and economies on the basis of their race, gender, class, age, physical ability, HIV status, geographical location, sexual preference, religion and other socio-cultural factors. Social exclusion leads to unequal participation in economic, political, educational, and digital arenas, and it follows that discrimination limits ICT uptake. The infusion of ICT into a country paints the existing landscape of poverty, discrimination, and division onto the new canvas of technology use. Because ICT can reward those who know how to use it with increased income and cultural and political advantages, the resulting digital divide shows up in increasingly stark contrast. The trend is that privileged groups acquire and use technology more effectively, and because the technology benefits them in an exponential way, they become even more privileged. For example, in many countries women are inhibited or prevented from using technology, and ICT professions continue to be male-dominated. There are also growing gaps between younger and older generations in relation to technology use in some communities: older people often believe that they are "too old" to use technology, while in other communities a "pecking order" for technology use prevents younger people from using ICT. Development initiatives need to be aware of the socio-cultural factors that have an effect on the use of ICT they target, and take steps to mitigate discrimination.

Example questions for applying this criterion: Are people limited in their use of technology because of their gender, race, disability, age, or other socio-cultural factors? What kinds of socio-cultural issues could impact on the ICT project/policy in the community involved? What can the ICT project/policy do to help ensure that people and organizations are not limited in their technology use due to gender, race, disability, age, or other socio-cultural factors?

(8) Trust in technology

The level of confidence that people have in computers and the Internet has been a defining issue in the design and widespread acceptance of ICT in the developed countries of the world. The same is proving to be true in developing countries, especially as issues such as privacy, data protection, security, and cybercrime begin to affect developing country ICT users. If computer and Internet users do not feel confident about what happens "behind the screen", it can significantly limit the ways that people are willing to use the technology. This is especially relevant to the adoption of e-government and e-commerce applications, but also has bearing upon the motivation to become e-literate generally. Some believe that a lack of awareness about these key issues among new ICT users is a potential time-bomb: where unsophisticated users naïvely trust online information and computer applications they are more susceptible to scams and fraud, and if the problem harms too many, there could be a backlash against technology use. As part of efforts to advise people and organizations about the benefits of technology, it is also important to inform about the risks involved in ICT use to help new users guard against them.

Example questions for applying this criterion: Do people and organizations have confidence in technology use? Do they understand the implications of the technology they use? How do the communities or targeted groups feel about issues like privacy, security, or cybercrime? Do they understand issues like privacy, security, or cybercrime in the context of technology use? What can the ICT project/policy do to help ensure that people and organizations have confidence in technology use? What can the ICT project/policy do to help ensure that people and organizations understand the implications of the technology they use in terms of privacy, security and cybercrime?

(9) Local economic environment

While the usefulness of technology for socio-economic development has been demonstrated, the sustainability of such efforts in developing countries has proven challenging. At the end of the day, the local economic environment determines the extent and frequency of technology use in the long-term. So ICT projects and policies should also be designed with local economic conditions in mind. If people and organizations cannot afford to use technology now, subsidized ICT projects will not succeed in the long-term if steps are not taken to improve the economic environment. Technology used to foster economic growth can help expand ICT use in the community more generally. For example, when community-based organizations and small businesses are involved in providing technology services and creating content for other businesses, this can generate revenue to help make local technology use sustainable, which in turn will have a positive impact on the local economy. However, it is important that the potential negative economic effects of ICT projects and policies are also considered. For example, ICT training programs can be useful, but local job opportunities must be created for those who acquire ICT skills so they do not have to leave their families and communities in search of employment. Failed community access projects can lead communities to reject future technology projects, where they feel that funds have been drained from the local economy that might have been better used for other things. And in some cases new technologies can replace human labor -- for example by "cutting out the middle-man" -- resulting in lost jobs, which also can create negative attitudes towards technology. These effects must be carefully weighed against the potential gains in productivity or better distribution of wealth.

Example questions for applying this criterion: What is the condition of the local economic environment? What impact will ICT use have on the local economy? Can the local economic environment sustain the technology use envisioned in the ICT project/policy? Can the local economic environment sustain long-term technology use generally? Can ICT be integrated into the local business community to improve the economic environment? Does the ICT project/policy have a plan for ensuring the sustainability of the envisioned technology use? What can the ICT project/policy do to help ensure that the local economic environment can sustain long-term technology use?

(10) Macro-economic environment

Where the local economic environment determines the sustainability of technology use in ways that are seen directly at the community level, macro-economic policies have an impact that is initially seen at the national level, but which eventually is also felt at the local level. National governments and regional economic bodies usually set macro-economic policies that are then implemented by regulatory agencies. There are a variety of macro-economic policies that can affect the widespread uptake of technology, including policies governing deregulation of key industries; foreign direct investment; banking and currency controls; trade tariffs, labor and employment standards; and taxation. Macro-economic policies can hinder technology use, for example where foreign investment in local technology industries is discouraged by high taxation or currency controls. Alternatively, macro-economic policies can help create an enabling environment for the widespread use of ICT, for example where customs duties on technology are reduced to

encourage computer imports. ICT projects and policies need to consider how the macro-economic environment will affect their activities, and plan accordingly. If macro-economic policies have a negative impact on ICT uptake, development projects may want to consider whether to engage in advocacy activities to promote appropriate changes.

Example questions for applying this criterion: Does the macro-economic environment in the country or region affect technology use? What are the key areas of macro-economic policy that affect technology use in the country or region? Is macro-economic policy favorable to technology use? How do policy issues like deregulation, taxation, trade, investment, or labor affect the use of technology envisioned in the ICT project/policy? What can the ICT project/policy do to help ensure that the macro-economic environment is favorable to technology use?

(11) Legal and regulatory framework

Policy positions that are agreed upon in international, regional, and national institutions are implemented through laws and regulations at the national level to form the framework for governing the country. ICT policy-making happens at the international level through processes like the ITU discussions on telecommunications policy, UNCITRAL development of model laws, and WTO negotiations on trade. And at the regional level it is seen in efforts to address cross-border issues like Internet exchange point negotiations, technology trade and investment cooperation, or consortium bids to roll out Internet backbone infrastructure. At the national level ICT policies cover a range of issues, from radio and television broadcasting to the provision of telecommunications services. ICT policies and the resulting legal and regulatory framework can either foster or hinder the effective, widespread use of ICT, depending on the principles that shape it and how they are implemented. Governments must understand the implications of their decisions for the technology end user, and shape an appropriate long-term strategy to implement laws and regulations that support technology use.

A range of projects are underway in developing countries that integrate ICT in a number of critical areas, including notably education, healthcare, government, trade, and small business support. However, these projects frequently encounter obstacles that directly or indirectly relate to the country's legal and regulatory framework. One example is projects that rely on technology or infrastructure use that may be limited by current laws or regulations, such as satellite, wireless, or Voice over Internet Protocol (VoIP) technologies. Another example is ICT projects that are hindered by a general law or regulation, such as fiscal or other regulations that limit cross-border trade and communications. A final example is projects working in a particular area (such as healthcare) where current laws or regulations do not cover ICT use (such as privacy and data protection laws governing the handling of electronic health data). Development initiatives need to consider how the legal and regulatory framework will affect their activities, and plan accordingly.

There are many examples where a nation's leadership has embraced ICT and is ready to promote a legal and regulatory environment that will enable its widespread use. But often at the working level, government officials do not understand the implications of existing laws and regulations that may hinder ICT use, nor the changes they need to formulate and implement to create a more favorable framework. There is no "one size fits all" solution and transplanting legal models to developing country environments does not work. An effective ICT legal and regulatory framework is unique for each country, and must be shaped by the existing web of legislation, local culture, economics and politics. Although the development aid industry generates a tremendous volume of reports, advice, and analyses aimed at helping developing countries shape laws and regulations, developing country governments frequently raise concerns that the recommendations offered do not show sufficient understanding of local needs and conditions. Ground-level ICT initiatives can also help give leaders a realistic appreciation for what ICT can -- and cannot -- do for the country. They can work with the government to help frame

appropriate legislation, balance the needs and views of the relevant constituencies, and ensure the legal and regulatory framework is implemented effectively. When the legal and regulatory framework limits ICT use, it can be helpful for development projects to engage in advocacy activities to inform ICT decision-making and promote appropriate changes to laws and regulations.

Example questions for applying this criterion: Do the country's laws and regulations affect the use of technology? How do the laws and regulations affect technology use in the country? Does the legal and regulatory framework promote or inhibit technology use? How do legal and regulatory issues affect the use of technology envisioned in the ICT project/policy? What can the ICT project/policy do to help ensure that laws and regulations promote, and do not inhibit, technology use?

(12) Political will and public support

Governments can play a key role as engines for socio-economic development. Most developing country leaders are convinced that ICT will help their nations solve economic and social problems, and they are ready to drive the necessary changes. Government has the unique ability to lead the way while facilitating others to expand the scope of activity and become involved in the process. It is critical that governments lead effectively and bolster public confidence in the path they take. However, translating a grand vision into practical steps that fit their local context is not a simple matter. Governments often try to meet the short term demands of their constituencies and fail to provide a coherent long term plan for prosperity, or hinder the efforts of development initiatives and the private sector to address ICT disparities.

Some governments have planned e-strategies, but at a practical level they lack the political will to drive change because they do not enjoy widespread public support for an ICT-focused approach. Often this is because government officials fail to engage stakeholders in framing the e-strategies, so they do not have public buy-in for their long-term plans. Public participation is also needed so that governments do not have to carry the burden for development alone. If citizens are informed and empowered to participate in the policy-making processes that determine how ICT shapes their society, they will offer their support to government decisions, and be more pro-active in improving their own lives. In some cases the government has partnered with the country's business and civil society sectors to promote ICT-enabled development at the ground level, but the various stakeholder groups lack the experience and resources to give effective input. Often they do not understand the issues being addressed, or they lack clear channels to express their concerns and acquire information. Further, most people do not see the relevance, or the direct impact, that policy-level developments have on their lives. ICT projects and policies can help build channels of communication between decision-makers and stakeholders, including by using technology. For example, e-mail lists can serve as simple channels for information exchange between citizens and government officials. Development initiatives can also inform governments about ground-level realities, and help advocacy organizations engage with the government to promote strategies that enhance ICT use.

Example questions for applying this criterion: Do people support the widespread use of technology in their communities? Do they understand the links between local technology use and the government's overall political strategies to promote ICT for development? What is the link between public support for technology use and government e-strategies? Does the government have the political will to drive needed change to promote technology use? What can the ICT project/policy do to help ensure that the general public supports technology use? What can the ICT project/policy do to help ensure that the government has the political will to drive needed change?

III. The 12 Habits of Highly Effective ICT-Enabled Development Initiatives

The Real Access criteria focus on the substantive factors affecting ICT projects and policies. Yet sometimes initiatives consider and address these issues, but still fall short because of poor project administration. The *12 Habits of Highly Effective ICT-Enabled Development Initiatives* are a set of best practice guidelines for project management, which aim to ensure the internal health of initiatives harnessing ICT for development. Like the Real Access criteria set out above, the 12 Habits can be used proscriptively for planning, or retrospectively for evaluation. The 12 Habits are:

Habit 1. Start by doing some homework. Look at what has worked and what has not worked, study good practices in the area, and build on what you have learned.

The basic assumption underpinning this Habit is that there are few completely original ideas. So just as entrepreneurs study business models and competitors before they start a company, ICT-enabled development initiatives should start by looking at other activities in their field. If the idea appears to be wholly unique, then it may be necessary to think more broadly to identify something similar, looking at different technologies, geographic areas, and sectors. For example, if the idea is to implement WiFi for healthcare in a rural community in South Africa and it has not been done before, then it would be useful to look at *any* implementation of WiFi in any African country, or *any* rural setting beyond Africa, and projects using a different technology for healthcare in rural South Africa.

Desktop research is an obvious starting point for homework. As development initiatives increasingly share information about what they do, it will be easier for others to study past experience. However, many initiatives that use cutting-edge ICT are ongoing and may not have disseminated their lessons learned; in such cases it is can be helpful to find out who is doing what in the field, and to contact researchers and project leaders to learn about their experiences. Even when other projects are very different, there may be elements and ideas that can be borrowed, so it is important to adapt as needed. The term "best practice" has come under fire recently in the ICT development community, where practitioners point out that no practice can be generically "best" where each project that uses technology must necessarily be different to accommodate the unique characteristics of each ICT use, the community where it is located, and the broader social and economic systems that impact on its use. Nonetheless, successes and failures should be studied and "good" practices identified, which may require adaptation to be applied in different settings. The main point is to learn from others and build on those lessons with new ideas.

Example questions for applying this Habit: What kind of homework can be done to gain a full understanding of the lessons learned by previous efforts of this kind? What kinds of homework have been done? What related work has been done in the field? What "good practices" are relevant to this particular initiative? Does the initiative draw on good practice in the field? What concrete steps have been taken to build on good practices?

Habit 2. Conduct a thorough needs assessment of the community to be served so you can plan to do what is actually required.

While Habit 1 deals with unearthing lessons from what has gone before as general background to inform the work at hand, Habit 2 calls for the collection of specific information on the environment and needs of the particular community or group to be served by the initiative. Like a business, an ICT-enabled development initiative must understand its "market": local conditions, the needs and desires of the people and organizations, and other factors that will affect technology uptake and sustainability in this setting. The needs assessment should fully investigate current technology use in the area

to be served, including local capacity to use the technology; the availability of technical support; the kinds of services that people and organizations would be willing to pay for and what may need to be provided for free; the training needed to integrate technology use into daily routines of the target groups (training in technology use and business processes); the availability and reliability of electricity and phone lines; secure storage for technology; and many other factors. Depending on the initiative, it may be useful to include both a high-level review, to gain an understanding of the broader economic, social, and political landscape, as well as a detailed review of data collected directly from the individuals involved. The needs assessment must give a comprehensive picture of local needs and conditions so that technology solutions can be adapted to the particular circumstances. This is especially important in developing countries, where technology solutions that work in the United States, Europe and other "developed" environments cannot simply be transplanted to developing-country settings and expected to work.

Analyzing user needs may not be simple in many developing country settings. Often target groups and organizations have had little or no previous exposure to technology, so they lack even a basic understanding of what ICT can do for them and are unable to articulate their technology needs. In that context, the analysis of user needs must consist of one-part listening to potential users and one-part educating them about what is possible with ICT.

Example questions for applying this Habit: What kind of assessment will paint a picture of the needs of the community or target group? Did the initiative start by looking at the concrete needs of the people and community that it serves? Is this initiative built around real needs of an identified group? Where the community has little previous experience with ICT, did the initiative include an appropriate education aspect alongside the needs assessment?

Habit 3. Make it local: ensure local ownership, get local buy-in, work with a local champion, and be context specific.

There are generally two kinds of ICT-enabled development projects: those that are created from within the community by local actors who seek solutions to daily problems, and those that are devised by outsiders with new ideas and good intentions for solving community problems. The latter are often international development aid projects planned in European or North American capital cities and delivered in a developing country, or projects designed in national capitals for implementation in rural areas. For projects that emerge from within the local context, the advice of this Habit centers on the need for gaining solid support from neighbors, colleagues, and local leaders. ICT initiatives that are imposed from outside often struggle to get the buy-in from communities that is needed to ensure their success.

For outside projects, this Habit recognizes the tension between the desire for scaling and replicability (where there is pressure to build "generic" projects that can be replicated at a wide scale), and the practical need for localization (where the reality requires that projects be very specific to each unique local setting). Certainly replicating and scaling effective initiatives so they can extend their impact and reach many beneficiaries is a desired outcome -- but it is rarely a core component of initial success. The most effective initiatives focus on localization first, thinking small and context-specific in framing their approaches, and working with local people to build programs around the findings of a needs assessment. And later it can be determined whether elements of the approach can be replicated and scaled. This Habit follows from Habit 2, because ensuring local ownership starts with the needs assessment -- it must go beyond information collection to be a process of education, awareness-raising, and engagement with the people who will be served. This kind of broad process will lay a foundation for local buy-in and a sense of ownership among beneficiaries, and it will necessarily lead to a context-specific project.

Working with a local champion can help make a project that originates from outside become more locally-driven. A local champion is someone who understands and embraces the objectives and sees the big picture, supports technology-based solutions, is trusted by the community served, and shares a vision for the future. By working with a local ICT champion who embraces the potential benefits of technology, the initiative can engage an ally to support and promote ICT use among local groups. The champion should play a key role in communication with the community, be an advisor to the initiative, and act as a catalyst to help the initiative introduce innovation. This individual may not necessarily be on site in the community, but must have a concrete connection that can be leveraged. Working at the local level can also mean navigating local politics, so projects must be aware of the social, cultural and political dynamics they may encounter and involve a local champion who can help with this aspect too. Therefore, the best ICT champion may be someone in a position of authority, who is respected by local community members, and sets an example as a technology user. This kind of champion will help shore up local support, and they can be called upon to open doors and bring in resources as needed.

Example questions for applying this Habit: What can the initiative do to ensure local buy-in for the project or policy? What would the characteristics for an appropriate local champion be? How could a local champion be engaged to support this project or policy? Has a local champion been identified and engaged? Does the initiative connect effectively with the people in the community that it serves? What can be done to give local participants a sense of ownership over the project or policy? Do local participants feel a sense of ownership? Were local participants involved in project planning?

Habit 4. Engage a local problem-solver with some degree of responsibility, and involve them sufficiently so they can identify and address problems as they arise.

This Habit flows from Habit 3 by highlighting that initiatives work best when there is at least one local actor on site who takes some level of responsibility for the project and is resourceful enough to solve whatever problems invariably arise. It is ideal if this role is filled by a local project manager, if there is one. But if the project is run by an outside organization the problem-solver does not necessarily need to be a fulltime staff member; for example, the role could be filled by someone from a partner organization. The role of local problem-solver is not the same as that of local champion, although the two may be played by the same person. Where the champion may not need to be involved in the initiative in a hands-on way, the problem-solver necessarily plays a more practical role in the day-to-day, as someone who is present locally and takes personal responsibility to deal with things that come up. This is a person who can get things done, either by solving problems themselves or doing what is needed to find a solution. The problem-solver might provide services or make arrangements for services needed to keep the initiative running, or complete a local government form to ensure compliance with local administrative requirements. This would be the person who shows up to deal with a situation like a flood or a robbery. In an ICT-enabled initiative this person also needs to either provide technical support, or make some kind of arrangement with a service provider to keep computers working, including getting systems up and running after a power outage, upgrading software, doing backups, and so forth.

Example questions for applying this Habit: What kind of local problems will be faced in the project? What kind of skills must the local problem-solver bring to be able to address these problems? Is there a project manager who can fill this role? How can a local problem-solver be engaged?

Habit 5. Form sound partnerships and collaborations, and be good partners and collaborators.

The massive scale of modern problems requires holistic and systemic solutions. And the practical problems of integrating ICT into development initiatives are complex and manifest in different ways in different countries and communities. Often the issues at stake are beyond the scope of any single project. Therefore, partnerships and collaboration are essential for ICT-enabled initiatives to make a real impact and to improve their chances of achieving sustainability. If ICT-enabled initiatives are going to make a difference to socio-economic development over the long-term, civil society organizations, governments, and the business community must cooperate, pool resources and experience, and tackle problems collaboratively.

But the word "partnership" means different things to different people. In some cases, partnership means a committed relationship between two organizations that agree to work together over the long term, targeting common goals, sharing funds, exchanging staff, and building joint outputs. In other cases, the word "partnership" is used more loosely, where organizations may just agree to publicly endorse each other's work to help build mutual credibility in the field, whether or not the partners are actually involved in each other's work in a concrete way. In between these extremes, there are many gradations on the interpretation of "partnership". No matter what level of partnership is sought, forming sound partnerships is about initiatives making good choices in who they partner with, and making sure that they are clear about what they expect to get out of it. And being a good partner means initiatives do what they say they will do, communicate regularly, and share information in a transparent way. If partners do not have the same expectations, it can be discouraging and frustrating; however, expectations can be managed by setting down clear parameters for the relationship in a Memorandum of Understanding at the outset. Partnerships are fragile; they should be based on trust, but trust has to be earned. Initiatives can earn the trust of those they work with by being good partners themselves.

Example questions for applying this Habit: What kinds of partners are available and relevant? What level of partnership or collaboration is appropriate? Should a partnership agreement be drafted to confirm specifics of the partnership? What can the project do to be a good partner and collaborator itself?

Habit 6. Set concrete goals and take small achievable steps. Be realistic about outputs and timelines.

At some level, almost everyone involved in socio-economic development work is inspired by big ideas and a desire to improve the world. Faced with large-scale problems, the development community hopes that grand visions, ground-breaking innovations, and tireless hard work will make the difference. This brand of enthusiasm may well form the engine driving efforts in this field. However, many ICT initiatives suffer from goals that are too lofty, and project plans that try to do too much in too little time. Just as Habit 5 points out the reality that systemic problems require coordinated approaches, this Habit underlines the importance of breaking down solutions to big problems into concrete, achievable pieces with realistic deliverables.

This is important for a number of reasons. At a basic level, this is simply about setting out a solid plan and sticking to it. Identifying concrete and realistic objectives from the outset will give the initiative targets to aim for. And when the project gets bogged down or sidetracked -- as often happens even with the best plans in place -- these clear targets will provide a focus point to get things back on track. Equally important is the need for a structured methodology that is based on small achievable steps, which can keep project implementation moving forward, even when the objectives seem distant and unobtainable. Additionally, in a field where burn-out is rampant, setting goals too high can put untenable pressures on project staff, which can turn optimism to cynicism. Setting unrealistic goals can also lead to problems when initiatives do not deliver what they said they would,

leaving communities feeling discouraged and distrustful. And while funders usually require well-considered objectives and deliverables, they often put pressure on projects to deliver results that fit within timeframes set to their funding cycles, which may not always line up with what makes sense for the project. So ICT-enabled development initiatives should chart an effective course that taps the energy of optimism, but is realistic and achievable within the constraints faced.

Example questions for applying this Habit: What are concrete and realistic ICT goals for the project/policy? Does the initiative set concrete and realistic goals for ICT use? Does the initiative have a structured methodology based on small, achievable steps? What are the appropriate small achievable steps that will help the initiative move toward its goals? How can the initiative be designed to avoid the burn-out of project staff and make the most of their optimism?

Habit 7. Found your initiative on technology-neutral concepts so it can be adapted as needed to accommodate technology change over time.

The previous Habit calls for realistic timeframes to accomplish project goals, and Habit 7 flows from that by further highlighting the impact of time on technology-based projects. Modern information and communication technologies change more quickly than many ICT-enabled development projects can be moved from an idea, through the needs assessment, proposal-writing and funding stages, and on to full implementation. New technology standards are constantly being developed, and new products introduced to the market. To stand the test of time, development initiatives should avoid getting locked into a specific technology, and use technologies based on open standards whenever possible.

This Habit emerged from the frustrated request of a researcher who had submitted a proposal for a project based on very particular technology, and by the time it was funded the technology was out-of-date. While it may not be possible to speed up the funding process, using a broader, technology-neutral concept when articulating the project idea leaves room for adapting to the most current technologies once the project is ready to get underway. For example, instead of basing a project on WiFi standard 802.11b, building it using the more general concept of an "appropriate wireless solution" would give the same results as well as flexibility to move to a more current WiFi standard or another wireless technology if needed.

Once a project is underway, a technology-neutral approach leaves room for the project to change and adapt technologies as needed. Technology use built on open standards makes it easier for initiatives to shift between technology solutions. That said, replacing technologies and systems once a project is underway can be a significant burden, so choosing technologies that can withstand the fast pace of change in the technology sector is also a good way to help ensure sustainability for an ICT-enabled development project. Yet many experts in the field would argue that no technology choices can ever be "neutral": by choosing one technology over another an initiative or policy is directing community ICT use -- and the wider market -- in a certain direction. So development efforts should make careful decisions, and to the greatest extent possible make choices that will stand the test of time.

Example questions for applying this Habit: What does "technology neutrality" mean in the context of this project? How can the project be built around technology-neutral concepts? Are open standards available that could be used in the implementation of this technology? Can more general or generic technology choices be made? Will the technology used stand the test of time?

Habit 8. Involve groups that are traditionally excluded on the basis of age, gender, race or religion.

The likelihood of living in poverty is far greater for groups who suffer discrimination, so the issue of social exclusion necessarily lies at the heart of much ICT-enabled development work. The infusion of ICT into a country or community paints the existing landscape of poverty, discrimination, and division onto the new canvas of technology use. Because ICT can reward those who know how to use it with increased income and cultural and political advantages, the resulting digital divide shows up in increasingly stark contrast. The trend is that privileged groups acquire and use technology more effectively, and because the technology benefits them in an exponential way, they become even more privileged. And it is a difficult circle: social exclusion leads to unequal participation in economic, political, educational, and digital arenas, and it follows that discrimination limits ICT uptake.

So, socio-economic development initiatives that fail to involve traditionally excluded groups fall short on the universal mission to serve humanity and promote equity. When groups are alienated for social or cultural reasons it not only hinders ICT penetration to the detriment of those excluded, but also limits the benefits of diversity in the information society more broadly. ICT use and the information exchange it engenders can be a powerful driver for social change. This potential must be harnessed by ICT initiatives, to promote understanding of the politics around discrimination and division in society and the economy. ICT enabled-development initiatives must be aware of the socio-cultural factors that have an effect on the use of ICT they target, and take steps to mitigate discrimination. They must strive to include all groups of society in their projects, and specifically those that suffer discrimination for social or cultural reasons.

Example questions for applying this Habit: What are the dynamics around social exclusion and the use of ICT in the communities targeted? Which groups are excluded in the communities targeted by the project/policy? How can the project/policy be implemented to actively involve them? Does the initiative take steps to involve groups that are traditionally excluded because of social, cultural, economic, political, or other reasons?

Habit 9. Identify and understand the external challenges you face, and take practical steps to address them.

External challenges are obstacles to the success of an initiative that are beyond the direct control of those implementing the project. They may be something that can be planned for (like electricity outages that require power backup for projects to carry on) or not (such as changes in the political landscape or natural disasters). For example, each of the Real Access criteria -- such as illiteracy, the lack of training for technology use, or a lack of public trust in technology use -- can become an external challenge for ICT-enabled projects in one way or another. There will always be external challenges that will affect ICT initiatives, including many that will not be anticipated in planning processes. These kinds of factors cannot always be controlled, but what is essential in effective project management is that these challenges are identified, understood, and tackled head on.

In some cases, these challenges may seem beyond the scope of the project and too big to address -- such as laws and regulations, or shifts in political power -- but they are ignored at the peril of the initiative. If those managing a development initiative look at an external challenge and decide that it is beyond their ability to address at its root, it is still critical that they determine what steps can be taken to mitigate its affect on their work. For example, changes in the local government structures where a community-based project is located are likely to impact on the project. While it may be beyond the scope of the work to get involved in local politics, it remains crucial to understand the political environment and adapt the approach as needed. To illustrate the point, in such a case, building in time to introduce newly-elected government officials to the project could help mitigate problems down the road.

Example questions for applying this Habit: What are the key external challenges that could affect the ICT initiative? Have each of the Real Access criteria been reviewed and understood as potential external challenges that could have an effect on the project? Does the ICT initiative/policy identify and understand the external challenges it faces? Does the ICT initiative take practical, proactive steps to overcome the obstacles? What are the practical steps that could be taken? If it is not appropriate for the initiative itself to get involved in tackling the external challenges, what other options are there for seeing that they are addressed?

Habit 10. Monitor and critically evaluate your efforts with effective tools, report back to your clients and supporters, and adapt your approach as needed.

Significant amounts of money have been spent on ICT initiatives during recent years, and too frequently there is little to show for it. ICT initiatives should treat the funding that supports their efforts more like an investment than a gift. They should regard funders as investors or clients, and report back to them regularly on progress and impact. Equally important is the need to report back to users, as they are the most important stakeholders of any development initiative. Their input ensures that an initiative's efforts are focused on real needs.

Part of the reporting should be based on a critical evaluation of the ICT project or policy. If traditional monitoring and evaluation frameworks are not effective gauges of progress, then new tools should be developed that are more suitable. For example, emerging ideas around "social return on investment" offer promise for use in the ICT-based development field to illustrate ground-level impact (see more below). An initiative should demonstrate progress and impact. But where results are not as successful as expected, the evaluation should be used as a learning process, to identify and understand mistakes and shortcomings so methodologies can be adapted as needed to improve the work. Monitoring a project at regular stages and collecting data can also give evaluation results statistical relevance, and create a yardstick for managers and funders to measure the impact of their work over time.

Example questions for applying this Habit: Does the initiative evaluate its efforts, glean what is working and what is not, and learn from its mistakes? How could its work be measured in different and innovative ways? Does it adapt its methodologies as appropriate? Does it report back to the community it serves as well as funders and supporters, to explain what it is doing and why, and how it is helping the community?

Habit 11. Make your initiative sustainable over the long term -- either by bringing in sufficient income to be self-sustaining, or by delivering on a social mission so effectively that it is worthy of continued donor funding.

While the usefulness of technology for socio-economic development has been demonstrated, the sustainability of such efforts in developing countries has proven challenging. Many well-intentioned ICT initiatives start off strong but fail in the long-term because they do not become sustainable. ICT-enabled development initiatives should be built upon sound "business" plans (whether for-profit or non-profit) that include provisions for overall sustainability. At the end of the day, the local economic environment determines the extent and frequency of technology use in the long-term. So ICT projects and policies should also be designed with local economic conditions in mind. If people and organizations cannot afford to use technology now, subsidized ICT projects will not succeed in the long-term if steps are not taken to improve the economic environment. It is also important that ICT initiatives consider the "soft" issues that can impact on their sustainability, such as their ability to retain human resources, in-house skills, and the intangible support of project participants.

If an initiative simply will never achieve economic sustainability by generating income, then it must make other plans for its long-term sustainability. One way is to deliver very well on its social mission and report back effectively on the positive impact it is making, so that its funders will continue to support the work. An initiative may need to develop indicators for quantifying its "social return on investment", or the non-financial benefits to society and the community that the initiative brings. If such indicators cannot be captured, descriptions of qualitative measures can also be used to paint the picture of how ICT-enabled development initiatives deliver a social benefit worthy of continued support.

Example questions for applying this Habit: What is needed to make the ICT initiative sustainable? Can it bring in sufficient revenue to support itself over the long term? If not, what are the options for achieving sustainability based on the social benefits it brings to the community and society at large? Does the initiative work to make its efforts economically and socially sustainable, over the short and long term? What kinds of "soft" issues relate to the sustainability of the ICT initiative and how are they being addressed?

Habit 12. Widely disseminate information on what you are doing and what you have learned so others can avoid your mistakes and build on your efforts.

Underpinning this Habit is the strong, ethical argument that work done in the name of social good should be shared in the public domain. Actors within the development aid community have a responsibility to share their knowledge and disseminate their findings as widely as possible, especially when projects are supported by donor money (often provided by tax-payers). Many organizations working in the ICT-enabled development field are known to keep information about their initiatives to themselves, sometimes because they seek to make income from production of proprietary work, and often due to internal politics, bureaucracy, and disorganized processes. However, sometimes information is kept quiet in order to play down the shortcomings of projects. But how can the field move forward if no one is willing to speak frankly about mistakes so they can be studied and understood? Mistakes themselves are not the problem: repeating the same mistakes is.

This Habit brings us full circle from where we started at Habit 1. ICT initiatives should build their efforts on what is already known in the field based on findings from the homework exercise. But in order for this to work each initiative must share information; if they do not disseminate knowledge and lessons learned it makes it difficult (if not impossible) for others to learn from past experiences, and this can lead to mistakes being needlessly repeated. As they implement good practices in their projects, ICT initiatives should carefully examine their efforts and determine what works best for them, and then share their experiences with others. Disseminating strategies for overcoming obstacles and other lessons learned can greatly contribute to the community of knowledge and help move the whole field forward.

Example questions for applying this Habit: What can this initiative do to contribute knowledge on good practices to the field? Does this initiative do its part to contribute to the body of knowledge in the field by sharing experiences and lessons learned? Does the project/policy openly discuss both its successes *and* failures? Is information held as proprietary and sold for a fee, or is it made publicly available and widely disseminated through open channels?

IV. Applying the RA/RI Framework

The *Real Access/Real Impact* framework can be used in a variety of ways to help focus the work of ICT initiatives in developing countries. Bridges.org has used the Real Access/Real Impact approach to shape a range of important projects and research studies. The results have been seen in high-level reports informing the strategies of institutional funders, governments, and leading private sector actors, and in the implementation of ground-level projects by NGOs and academic programs. This section looks briefly at the four main areas of work that bridges.org has applied the framework to -- project planning, evaluation, policy-making processes, and technology research -- and provides an example project for each area. However, this is not a complete list of possible applications for the model. Other initiatives are encouraged to think "out of the box" to apply the framework creatively to their own efforts in ways that fit best to their work.

Project planning

The RA/RI framework is a valuable planning tool, which enables a holistic approach to development initiatives incorporating ICT and enhances the likelihood of their success. It is useful for defining clear project goals; understanding external factors that could impact success; and shaping the relationship between a project's technical goals and its influence on community development or ICT policy.

Example bridges.org project using RA/RI framework: Bridges.org applied the RA/RI framework as part of a two-year collaboration with the Broadband Applications Networking Group (BANG). BANG is comprised of students pursuing Masters and PhD studies in computer science at the University of the Western Cape and the University of Cape Town. The group aims to connect computer science research in Africa with real community needs and ICT policy-making processes. In particular, BANG explores new ideas and technical methodologies for improving ICT access for people in under-served communities. The BANG group knew that they wanted to make their computer science research less esoteric, but they were struggling to find a structured approach to address "soft" issues. Bridges.org used the RA/RI framework to provide that structure, working with the students to shape their research projects using this approach and helping them to anticipate obstacles and identify solutions. The initiative also informed the design of an academic policy that will guide future computer science research projects to connect with community implementation and/or policy recommendations. For more information see: *Evaluation of the Broadband Applications Network Group (BANG): An experiment in South Africa to connect computer science research with real community needs and ICT policy-making, bridges.org, 14 December 2005, <http://www.bridges.org/evaluation/bang/index.html>.*

Evaluation

The RA/RI framework provides a format for comprehensive assessment of an ICT initiative's activities and outcomes, highlighting particular strengths and weaknesses and identifying areas for future work. Such an evaluation looks through the lens of the Real Access criteria to gauge how well the initiative has addressed various substantive obstacles to ICT use, and considers how the 12 Habits have been applied in project management.

Example bridges.org project using RA/RI framework: Bridges.org conducted an evaluation of a pilot project to test the use of personal digital assistants (PDAs) in healthcare environments in three African countries, implemented by Massachusetts-based NGO Satellife. The project put PDAs into the hands of physicians, medical officers and medical students in different settings in order to demonstrate their viability and usefulness in collection of health data and dissemination of medical information. This evaluation

considered two main questions: (i) Did the PDA prove to be an effective tool for physicians and medical students to collect health data and access medical information as part of their daily routine? (ii) If not, why not? Information was collected through face-to-face interviews, a questionnaire, and extensive site-visits. Information collection tools and the evaluation report were shaped around the Real Access criteria and (then 8) Habits. For more information see: *Evaluation of the Satellife PDA Project*, 28 February 2003, <http://www.bridges.org/satellife/index.html>.

Policy-making

RA/RI is a valuable tool for shaping holistic policies that promote inclusion and address the digital divides and other inequities. It is critical that policy-making is based on a concrete understanding of the challenges of implementation, and the RA/RI approach provides the necessary link.

Example bridges.org project using RA/RI framework: Bridges.org worked with the Cape Town City Council to conduct a pioneering assessment of the digital divide in Cape Town. The assessment used a RA/RI approach to get a picture of where Cape Town's citizens, communities, and organizations stood in terms of ICT and the potential benefits of ICT use for social and economic development. The digital divide assessment looked at Real Access to technology throughout the City and brought a wide range of stakeholders into the discussion about ICT and development in the City. The resulting policy recommendations, framed together with the City Government, were used by the City Council to inform its strategic policy decisions and ICT project planning, including influencing Cape Town's award-winning Smart City Strategy and Smart Cape Access Points project. For more information see *Taking Stock and Looking Ahead: Digital Divide Assessment of the City of Cape Town, 2002*, <http://www.bridges.org/capetown/index.html>.

Technology research

The RA/RI approach is also useful in technology research studies, combining the narrow focus on the technical aspects of ICT solutions with a broader focus on socio-economic development goals. RA/RI helps highlight the factors that impact the suitability and success of a certain technology in a particular setting, as well as potential problems and opportunities of introducing new technologies in the local context. The exploration of ICT for development issues through the lens of RA/RI promotes a new understanding of the dependencies influencing success and impact of ICT development projects and policies in economic, social and ecological terms.

Example bridges.org project using RA/RI framework: Bridges.org's comprehensive comparison study of open source and proprietary software in community access labs used the Real Access criteria to assess current realities and long-term implications of software choices in Africa. The work informs lab managers and government officials who are tasked to make well-informed decisions for long-term benefits. The study considered both ground-level software implementation in computer labs in South Africa, Namibia and Uganda, as well as costs and benefits of software choices at the policy level. The software comparison study used the RA/RI framework to develop a methodology that combined desktop research with quantitative and qualitative data-collection. An initial list of important issues was compiled during a sample scoping study, and then grouped by RA/RI criteria. This helped identify gaps, and provided a logical framework for data collection. The RA/RI approach defined a range of issues that led to better understanding of a particular research topic. Questionnaire and interview questions were grouped by RA/RI criteria, which provided a guideline for the subsequent data analysis. For more information see: *Comparison Study of Open Source and Proprietary Software in an African Context: Implementation and Policy-making to Optimise Community Access to ICT*, bridges.org, 24 May 2005, http://www.bridges.org/software_comparison/