Point of View

Work-Life Innovation

Stimulating Work-Life Innovation in Developing Countries—Communities and Regions

Author
Peter Drury

June 2011

Cisco Internet Business Solutions Group (IBSG)

Work-Life Innovation

Stimulating Work-Life Innovation in Developing Countries—Communities and Regions

This paper is the second in a series of perspectives by the Cisco® Internet Business Solutions Group (IBSG) on the future of geographically distributed networked work, and how this approach is enabling profound changes to organizations, communities, and individuals. It focuses on how to stimulate work-life innovation across varying communities in developing countries. The first paper, "Work-Life Innovation: The Future of Distributed and Networked Work,"[1] discussed the nature of work—how it is changing and where it will be done—driven by generational change, technological innovation, the intersection with our personal lives, and the emergence of new economic development models. Upcoming Points of View will provide further insights into emerging technology platforms and applications; their relevance to education, communities, organizations, and individuals; and other perspectives that are shaping the future of work-life innovation.

Introduction

Connecting people is essential to driving innovation for country development. In developed countries, people thrive on the density of connections provided (particularly in urban areas), and companies are beginning to realize that a broadband-enabled workforce allows them to decentralize. Doing so not only enables collaboration and innovation on a global scale, but also promotes balance between work and life. The same principles that apply to stimulating work-life innovation in developed countries using broadband-based information and communications technology (ICT) can also apply to developing countries. The focus now is on how to provision appropriate and affordable ICT to support the developmental needs of communities and regions.

Broadband networks are key to supporting growth and innovation, according to research from The Organisation for Economic Co-operation and Development (OECD)[2] and experts from Cisco IBSG.[3, 4, 5] Evidence from The World Bank shows that a 10 percent increase in broadband per 100 people delivers a 1.38 percent boost to a developing country's gross domestic product (GDP).[6]

The importance of broadband for country development has also been reaffirmed by the Broadband Commission for Digital Development, which is predicated on the view that high-speed, high-capacity broadband Internet connections underpin all industrial sectors and increasingly are the foundation for public services and social progress.[7] In its report, "A 2010 Leadership Imperative: The Future Built on Broadband," the Commission proposes a common leadership vision of "broadband inclusion for all."[8] The accompanying report, "Broadband: A Platform for Progress," argues for a coordinated "trans-sectoral" approach: what applies trans-sectorally at a national level also applies at a regional and local level.[9]

The OECD argues that every region has a particular mix of resources and assets that can be developed fully if there is infrastructure in place that "fosters human capital formation and

facilitates the process of innovation."[10] It proposes that all regions should invest in their own growth by mobilizing local assets and resources to capitalize on specific competitive advantages, rather than depend on national transfers and subsidies.

Regions within developing countries have a key role to play in socioeconomic development by articulating the particular combination of human and natural resources that will differentiate what they can offer. Indeed, a broadband infrastructure provides the opportunity for developing countries to decentralize innovation and generate wealth, thereby improving urban-rural relationships to accelerate economic development in a more balanced way.

Every region contains different types of communities, such as those within urban, peri-urban, and rural areas—each of which may be defined by a particular "locale." Within these communities are people and enterprises that may share common interests with counterparts located elsewhere. For example, there may be farmers in rural areas who produce milk and need relationships with dairies and cheese producers located in small towns; in turn, they need relationships with wholesale and retail businesses based in peri-urban and urban areas.

Virtual communities will emerge when these relationships can be supported by digital media. Benefits include the ability to access and explore a wide range of information, quicken decision making, and reduce travel costs. A key ICT challenge for developing countries is how to encourage the evolution of virtual communities that can best support socioeconomic development.

Work-Life Innovation in Rural and Urban Communities

Digital technologies coupled with appropriate training, services, and content offer urban and rural areas an increasing range of innovative solutions. While some individuals can afford broadband services to the home, Internet access is prohibitively costly for the vast majority in developing countries. There are, however, some innovative ways to use ICT to support development in these communities.

ICT-Supported Innovation in Rural Communities

Mobile phones have significantly impacted rural communities in developing countries. In a dozen countries in West Africa, for example, the Esoko mobile platform uses Short Message Service (SMS) to update farmers on weather, market prices, buy/sell offers, and other information.[11]

In another example, Kruger National Park in South Africa uses Frontline SMS open source software to communicate and engage with neighboring communities, allowing cell phone users to exchange mass-message information without having access to the Internet.[12]

Click Diagnostics solutions enable health workers to input data into their Click-enabled mobile phones based on feedback during patient visits.[13] Based on the data, the automated system categorizes patients into three risk levels. For instance, high-risk patients receive priority for doctor assessment, are entitled to more visits from healthcare workers, and have access to a 24-hour doctor hotline.

The use of prepaid cards to take advantage of the best deals has been a key factor in the uptake of mobile phones. Pressure is growing to add more functionality. M-PESA, a mobile banking application introduced in Kenya, has generated a new market for mobile phones. For example, phones running the app are now used to handle remittances sent by relatives in the diasporas or urban communities to families in rural communities.[14]

In Kenya, "citizen journalists" used their mobile phones to send data to the Ushahidi software platform to map the violence that took place during the 2008 post-election.[15] Ushahidi, which has since been deployed elsewhere—such as in Haiti after the 2010 earthquake and in Afghanistan during the 2009 elections—shows the power of virtual communities in helping physical communities deal with crises. Ushahidi now runs on the Apple iPhone, but this raises another set of issues.

One in particular is cost. Smartphones are still prohibitively expensive for widespread adoption in developing countries, but their potential for innovation among virtual communities is great. For example, Sana open-source software, which runs on Google's Android operating system, is being used to improve healthcare access in developing countries by connecting healthcare workers in rural regions with physicians in urban areas. Patient data, including pictures and video, is sent via text message to a doctor, who texts back a preliminary diagnosis.[16]

In some countries such as India, however, Android phones cost between US$120 and $250, whereas regular mobile phones start at about $20. Some argue that what is needed are free services that give users access to the entire Internet (not just to limited mobile Internet sites) via Internet phones with limited capabilities.[17] If commercially sustainable, this development would undoubtedly accelerate the growth of mobile phones and their use in supporting community development—rural, urban, and virtual.

The availability of affordable mobile phones for rural communities presents many opportunities to send and receive messages, support innovation for community-based workers, and improve the speed and coverage of reporting on emergencies. There are, however, significant cost barriers to overcome in the ability to access cross-sector broadband-based services, where the real potential for development lies.

ICT-Supported Innovation in Urban Communities

A number of current initiatives show the relevance of ICT to urban development. Some are in low-income areas where people are eager to acquire training, skills, and employment. For example, three initiatives are under way in Kibera, a slum in Nairobi, Kenya. One is the Ghetto Development Centre, which is pursuing its vision for a communication and information center designed to give citizens access to mass-communications media so that their voices are heard, their faces are known, and their talents are recognized.[18]

The second is the Cisco Networking Academy, whose ICT training gives locals a chance to overcome their challenging circumstances.[19] The Academy started in 2007 and now has 25 PCs and more than 120 students studying under locally employed trainers.

In a third initiative, local people transformed a trash area into a garden and recorded the project using Flip Video® cameras. Various clips were then broadcast over Kibera TV. The experience shows the power of technology in enabling innovation in even the most

disadvantaged places. Just as important, the project illustrates how Kibera is beginning to play its part in the process of using video to enable "crowd-accelerated innovation."[20, 21]

In other urban communities there is less emphasis on locally driven provision and entrepreneurship, and more on public sector provision. For example, in Cape Town, South Africa, the first objective in the Smart Cape Access Point Project was to provide citizens free public access to computers and the Internet, often via libraries, because it was perceived that citizens (especially those previously disadvantaged) would not spend 10 rand (about US$1.50) for 30 minutes at an Internet cafe when that money is needed to put bread on the table.[22] While the project has proved successful,[23] it still relies on city funding.

Smart Cape has led to an emerging focus on public access facilities aimed at small businesses and entrepreneurs in townships around the country. Two digital business centers have opened (with support from the national Urban Renewal Programme) in Khayelitsha and Mitchells Plain, South Africa. These centers, however, focus on stimulating and enabling local businesses; they are not centers where people come to work as "employees" of larger organizations.

In high-income urban communities, broadband services are now becoming widely available. Businesses based in major urban centers are also driving demand for broadband. The challenge for national and regional planners is how to build a business case that enables broadband delivery to low-income urban and rural areas in ways that support the development of these communities and reduce the downside of urban migration. This requires long-term planning, political willingness, continuity of policies, and an understanding of the commercial realities facing ICT service providers. One approach has been to foster the development of telecenters, or e-centers.

Work-Life Innovation Through E-Centers

In developed countries, Smart Work Centers offer high-speed broadband access, teleconferencing, and social support. This approach not only helps increase collaboration and innovation, but also enables employees to work closer to where they live, thereby promoting work-life balance. In developing countries, however, the coverage and quality of the voice, video, and data infrastructure may be much less. Nevertheless, while mobile phones have shown great potential for connecting people and stimulating innovation, there is a growing need for e-centers to serve communities where jobs are few and resources are scarce—provided that they are adequately equipped and managed, and offer services that are of value to their respective communities.

The basic relationship required between an effective e-center and its community is well understood. For example, in 1997 Dr. Don Richardson—associate professor of the School of Rural Extension Studies, University of Guelph, Ontario, Canada—identified 12 common elements among successful rural and agricultural Internet communication and information systems.[24] Various models for such centers (sometimes known as telecenters or multipurpose community centers) have emerged in the public, private, and NGO/donor sectors, but none has proved fully successful. Poor management and training, and a lack of content, services, and digital infrastructure may be reasons for this. But, with the advent of affordable broadband-based services that enable video, collaboration, and a richer mix of media, content, and services, such centers are better positioned to offer improved e-skills, other types of training, and a range of trans-sectoral services. As citizens become more

connected and join virtual communities, citizens' value increases. A number of initiatives already exist and others are taking shape.

For example, in 2002, India launched a program to set up community information centers "in hilly and far-flung rural areas,"[25] followed by extensive investment in Common Service Centres (CSCs) operated on a franchise model. As of March 21, 2011, there are more than 93,000 CSCs in 31 states.[26] They are intended to provide high-quality, cost-effective video, voice, and data content and services in the areas of e-governance, education, health, telemedicine, entertainment, and other private services. The rollout, however, did not achieve the initial target of 100,000 CSCs by 2007, and in light of the types of service configurations people value and changes in technology costs, service packages are being adjusted.[27]

Success has not come easily for other government-backed initiatives that support multipurpose telecenters, such as the Thusong Service Centres in South Africa. A government report showed a lack of training on integrated service delivery, and poor connectivity and equipment.[28] This begs the question, "Are commercially driven centers more successful?" The following examples may provide the answer.

ITC Limited, an Indian agricultural conglomerate, has an extensive network of Internet-connected centers, known as e-Choupals, through which member farmers receive information, order products and services needed to enhance their farming productivity, and sell their harvests at fair market prices. Today, 4 million farmers in 40,000 villages use 6,500 e-Choupals to their advantage, bargaining as virtual buyers' cooperatives.[29] Recent evidence, however, suggests that increases in income among participating e-Choupal members may come at the expense of non-participating members within the rural communities, and that the impact on rural empowerment may be less than expected. [30]

Another interesting approach both government and the private sector can take is a business process outsourcing (BPO) model largely based on call-center technologies that offer rural communities competitive rates against urban areas.[31] Drishtee Development and Communication Ltd. created a three-tier BPO model in which local telecenters are run by village entrepreneurs who hire and train BPO entrepreneurs. At the middle level is the regional/rural BPO center (RBC) owned by Drishtee and linked to telecenters for job allotment and quality assurance of BPO jobs. At the top, or national, level is the head office/central hub, which is linked to the RBCs and is responsible for scaling and managing them.[32] This approach provides a way for the private sector to deliver viable e-centers.

With a commercially sustainable core set of services, other public service-oriented offerings can be added, and new hybrid solutions are emerging. The Kenya government, for example, is using a $4 million revolving loan from The World Bank to provide stimulus to entrepreneurs applying for a loan through the Family Bank.[33] Loan payments are made over a three-year period. As the loans are repaid, the funds can be used by other applicants. While the types of e-centers (referred to as Pasha Centres) that different communities can afford will vary,[34] the hope is to establish 210 (one per constituency) during 2011 and 2012.

There is solid evidence that rural entrepreneurs with appropriate ICT-enabled services—from mobile phones to e-centers—provided in an enabling rather than directive way can develop markets for their products and services. With support from the Sri Lankan government, which is geared to community-driven development, communities in the Gamaneguma-Gemidiriya Community Development and Livelihood Improvement Project[35]

created and now manage their own website, ITShed.[36] The site enables them to link with large buyers to find an outlet for their produce and skills. Livelihood-enhancing development in rural areas enabled by innovative use of ICT can connect rural, urban, and, indeed, global communities.[37]

While some have argued that "the uptake of mobile phones is leading to the demise of the telecenters,"[38] this view might be influenced by first-generation telecenters where bandwidth was narrow, connectivity intermittent, training poor, and content restricted. With a broadband infrastructure in place, particularly one capable of supporting video, a new generation of e-centers may point the way forward. In the developed world, Smart Work Centers have emerged in suburbs of large cities such as Amsterdam.[39] With all work processes fully supported and enhanced by ICT, employers can take advantage of this collective setting to provide workers with flexible and scalable workspace options.

In developing countries where there is broadband, it is possible for next-generation e-centers to support innovations in work and life using local resources. For instance, a craft worker could research initial ideas online and then develop a new range of products, conduct local or international market testing by sharing photographs/videos of prototypes, and then set up or join a supply chain for distributing the goods.

Taking a regional perspective, it may become more viable to enable people to work where they currently live (provided they have connectivity and relevant skills) for improved quality of life rather than move to urban centers. While they are countries with significant urbanization, Brazil and South Africa offer some examples of this approach.

Work-Life Innovation in Regions

Brazil

Brazil is now reaping benefits of political stability coupled with rural development policies. Major growth is in smaller cities and rural areas rather than in the urban centers of Sao Paulo and Rio de Janeiro. As the availability of broadband expands, so too will the possibilities for companies and governments to stimulate growth. Of course, getting the right mix of incentives is important and difficult when ICT evolves quickly and the rural development ecosystem is complex.

A 2006 study by the Brazilian Institute of Geography and Statistics showed various ways in which people of different social classes across Brazil access the Internet—primarily via dial-up (see Figure 1). People of lower (D and E) classes accessed the Internet mostly via public centers (paid or free of charge) and schools, while higher social classes accessed it mostly from home and work.

Figure 1. Percentage of People of Each Social Class per Place of Internet Access.

Social Class	Class/Place of Internet Access (%)						
	At Home	At Work	At School	Other People's Homes	Paid Public Access Center	Free Public Access Center	Other Places
A	78.04	37.16	6.85	12.53	8.06	0.07	1.05
B	62.04	27.84	11.44	13.59	19.33	2.00	1.17
C	27.69	24.10	17.56	18.65	35.54	4.13	2.06
D, E	9.82	11.89	22.76	15.87	48.08	6.44	2.35

Note: Study is based on a sample of 2,924 users. The criteria used for classification take into consideration the education of the head of household and ownership of a series of household items, linking them to a scoring system. The sum of the points reached by the household is associated with a specific socioeconomic class (A, B, C, D, and E).

Source: "Brazilian Digital Inclusion Public Policy: Achievements and Challenges," *Journal of Community Informatics*, ISSN: 1712-4441, 2007.

Since the study, the hope was that broadband would soon be available and that market liberalization would make telecom companies deliver inexpensive broadband. This did not materialize, and in May 2010, Brazil announced its National Broadband Plan in which Brazil activated the dormant optical fiber network and provisioned new broadband connectivity to enable digital inclusion across the country.[40] In 2009, there were 3,000 "telecentros," providing free Internet access and open-source software. This number is expected to expand rapidly, according to Brazil's National Broadband Plan. The question is, "Will government and industry take advantage of the benefits of connected communities (urban + rural) within connected states/regions to explore new relationships between work and community development?" In Brazil, as with everywhere, not only is appropriate technology needed to realize the benefits of ICT-enabled development, but so are people with the appropriate skills to use it. With basic e-skills, people can access the training, content, and services they need to improve their livelihoods.

South Africa

South Africa's Medium Term Strategic Framework spells out the need for "ensuring that training and skills development initiatives in the country respond to the requirements of the economy, rural development challenges, and social integration."[41] The Framework also recognizes the importance of ICT, in both schools and industry, in supporting these challenges. The importance of e-skills in supporting the Framework has been recognized, and the country's Department of Communications (DoC) plans to move the agenda forward.

The approach being taken is an example of how rural and urban communities within a region can use a broadband-based ICT infrastructure to support their development. The DoC has established an "e-Skills Council" with an "e-Skills Institute" to develop a national e-skills plan of action. Establishing "knowledge hubs" in each of the nine provinces is key to the plan. Each hub will focus on a particular part of the national e-skills agenda. At the hub at the University of the Western Cape, for example, the focus is on e-skills needed by e-center managers. E-centers may be run by national, provincial, or municipal government; entrepreneurs; or NGOs, and may offer different services according to the needs of the communities they serve. But, they all have the same essential requirements: they must be well-run and meet

the needs of their users. While other hubs may focus on the needs of an organization, industry, or specific components of the public-sector workforce, the focus in Western Cape is on the contribution of e-centers to the economy, rural development, and social integration in different communities.

There is now an opportunity to develop a national business and technical network architecture that will enable the collation, development, and dissemination of skills to all types of communities, as well as the deployment of collaborative social networking tools and video that will allow individuals and communities (both physical and virtual) to collaborate, innovate their work, and contribute content. It is up to regional (or provincial) government, however, to stimulate and coordinate the development of viable e-centers to take advantage of the virtual world on the one hand and the realities of their particular blend of human and natural resources on the other.

Conclusion

Communities (urban, rural, and virtual) and regions must consider ICT to exploit their own set of natural and/or human resources. In developing countries, while high-end technologies may be prohibitively expensive, mobile phones have much to offer. Affordable access to the full range of ICT services may be available only in community-based e-centers. Provided that the lessons for successful e-center management have been learned, new video and social networking technologies offer communities the possibilities of having e-centers that meet their needs for training (initially in e-skills), and for using these skills to gain access to courses, content, or business relationships. Coupled with a collaborative solution for sharing knowledge, these innovative approaches to livelihood development can operate both within a physical and virtual community wherever its members may be.

For more information, please contact:

Peter Drury, Director
Emerging Markets
Cisco Internet Business Solutions Group
pdrury@cisco.com

Further perspectives on Work-Life Innovation are provided at:
www.cisco.com/go/worklifeinnovation

Endnotes

1. “Work-Life Innovation: The Future of Distributed and Networked Work,” Bas Boorsma et al, Cisco Internet Business Solutions Group, March 2011, http://www.cisco.com/web/about/ac79/docs/ps/WorkLife_Innovation_IBSG_0329FINAL.pdf
2. “Network Developments in Support of Innovation and User Needs,” Organisation for Economic Co-operation and Development (OECD), 2009, http://www.oecd.org/document/58/0,3343,en_2649_34225_44245946_1_1_1_1,00.html

3. "The Economics of Network-Powered Growth," Dimitri Zenghelis, Cisco Internet Business Solutions Group, January 2011, https://www.cisco.com/web/about/ac79/docs/Economics_NPG_FINALFINAL.pdf
4. "Network-Powered Growth: How Governments Can Serve as Catalysts for Sustained Economic Growth," Peter Gruetter and Fred Thompson, Cisco Internet Business Solutions Group, June 2010, http://www.ciscosysteme.com/web/about/ac79/docs/pov/Network_Powered_Growth_POV_FINAL.pdf
5. "Broadband Across Africa: Accelerating Benefits," Joan McCalla, Cisco Internet Business Solutions Group; Robert Pepper, Global Policy and Government Affairs, Cisco; Enrique Rueda-Sabater, Strategy and Business Development, Emerging Markets, Cisco, September 2009, http://www.cisco.com/web/about/ac79/docs/Broadband_WP_0831REV_FINAL.pdf
6. "2009 Information and Communications for Development: Extending Research and Increasing Impact," The World Bank, cp 3, p. 45, May 22, 2009, http://web.worldbank.org/WBSITE/EXTERNAL/TOPICS/EXTINFORMATIONANDCOMMUNICATIONANDTECHNOLOGIES/EXTEDEVELOPMENT/0,,contentMDK:22417133~pagePK:210058~piPK:210062~theSitePK:559460,00.html
7. http://www.broadbandcommission.org/about.html
8. "A 2010 Leadership Imperative: The Future Built on Broadband," September 19, 2010, http://www.broadbandcommission.org/report1.pdf
9. "Broadband: A Platform for Progress," Paul Budde et al, 2010, http://www.broadbandcommission.org/report2.pdf
10. "How Regions Grow: Trends and Analysis," OECD Publishing, June 24, 2009.
11. http://www.esoko.com/about/
12. "Frontline SMS, software that can be downloaded off of the Internet, turns a laptop computer and a mobile phone or modem into a two-way group messaging hub. Once an organization has the software on its computer, it can add related contacts—whether they are farmers, healthcare workers, or human rights reporters—and send and receive group messages via SMS. The Internet is not required to use to the software. http://www.psfk.com/2009/10/frontline-smshtml
13. http://clickdiagnostics.com/wp-content/uploads/2010/08/ictd-working-paper-feedback.pdf
14. "M-PESA: Mobile Phone Technology and Remittance Services for the Poor," Dilip Ratha, blogs.worldbank.org, September 16, 2010, http://blogs.worldbank.org/peoplemove/category/tags/m-pesa
15. "Crisis Mapping Kenya's Election Violence," *iRevolution: From Innovation to Revolution,* October 23, 2008, http://irevolution.wordpress.com/2008/10/23/mapping-kenyas-election-violence/
16. "In the World: Healthcare in the Palm of a Hand," Morgan Bettex, *MIT News,* September 27, 2010, http://web.mit.edu/newsoffice/2010/itw-sana-0927.html
17. "The Importance of the Mobile Phone to Developing Countries," Conversations for a Better World, May 21, 2010,

http://www.conversationsforabetterworld.com/2010/05/the-importance-of-the-mobile-phone-to-developing-countries/

18. http://ghettomediacentre.org/about_us.htm
19. "Giving Africa's Neediest Communities IT Skills...and Hope," Brenda Cooper, August 23, 2010, http://newsroom.cisco.com/dlls/2010/ts_082310b.html
20. "TED's Chris Anderson Talks Crowd-Accelerated Innovation," *ASAP News Networks,* January 24, 2012.
21. "Chris Anderson: How Web Video Powers Global Innovation," TEDGlobal 2010, July 2010, http://www.ted.com/talks/chris_anderson_how_web_video_powers_global_innovation.html
22. "E-Powering the People: South Africa's Smart Cape Access Project," Susan Valentine, March 2004, http://www.clir.org/pubs/reports/pub125/pub125.pdf
23. "Evaluation of the Smart Cape Access Pilot Project," Infonomics South Africa, January, 2003, http://www.capegateway.gov.za/Text/2003/12/smart_cape_access_project_-_evaluation_final_report.pdf
24. "The Internet and Rural and Agricultural Development: An Integrated Approach," Dr. Don Richardson, Natural Resources Management and Environment Department, Food and Agriculture Organization of the United Nations, 1997, http://webcache.googleusercontent.com/search?q=cache:p49BSCzds-oJ:www.fao.org/docrep/W6840E/W6840E00.htm+Dr.+Don+Richardson+%2B+%22The+Internet+and+Rural+and+Agricultural+Development:+An+Integrated+Approach%22&cd=1&hl=en&ct=clnk&gl=us&source=www.google.com
25. http://india.gov.in/sectors/communication/community_infor.php
26. http://mit.gov.in/content/common-services-centers
27. http://www.csc-india.org/AboutCSCProject/ProjectComponents/BusinessModel/tabid/176/language/hi-IN/Default.aspx
28. "Report on the Assessment of the Effectiveness of Thusong Service Centres in Integrated Service Delivery," Republic Service Commission, Republic of South Africa, 2010, http://www.psc.gov.za/documents/2010/ThusongFinalv5.pdf
29. http://www.itcportal.com/sustainability/lets-put-india-first/echoupal.aspx
30. "E-Choupal: Hope or Hype? Neeraj Dangi and Harjit Singh," *American Journal of Economics and Business Administration, 2* (2): 179-184, 2010, http://www.scipub.org/fulltext/ajeba/ajeba22179-184.pdf
31. "Rural BPOs Through Drishtee's Telecentre Network," Vignesh Sornamohan, April 22, 2009, http://www.telecentre.org/profiles/blogs/rural-bpos-through-drishtees
32. http://www.telecentre.org/profiles/blogs/rural-bpos-through-drishtees
33. http://www.familybank.co.ke/Info/Family%20Bank%20Pasha%20Loan
34. "Kenya's Pasha Centres: Development Ground for Digital Villages," Peter Drury, Cisco Internet Business Solutions Group, January, 2011,

http://www.cisco.com/web/about/ac79/docs/case/Kenya-Pasha-Centres_Engagement_Overview_IBSG.pdf

35. http://www.gemidiriya.org/
36. http://www.itshed.net/
37. "People-Centered ICT: Improving the Lives of Millions and Creating New Business in Emerging Markets," Molly Tschang and Carlos Montes, Cisco Internet Business Solutions Group, April 2011, http://www.cisco.com/web/about/ac79/docs/ps/PeopleCenteredICT_IBSG_0411FINAL2.pdf
38. "Mobile Phones: The Silver Bullet To Bridge the Digital Divide?" Roxanna Samii blog, March 7, 2009, http://rsamii.blogspot.com/2009/03/mobile-phone-silver-bullet-to-bridge.html
39. http://www.cisco.com/web/about/ac79/docs/cud/SWC_Fact_Sheet_051209_FINAL.pdf
40. "Brazil Finalizes National Broadband Plan To Provide Universal Connectivity," *Free Software in Latin America,* May 5, 2010, http://news.northxsouth.com/?s=inclusao+digital
41. "Together Doing More and Better: Medium-Term Strategic Framework—A Framework to Guide Government's Programme in the Electoral Mandate Period (2009–2014)," Minister in the Presidency, Republic of South Africa, paragraph 39.9, http://www.info.gov.za/view/DownloadFileAction?id=103901

More Information

Cisco Internet Business Solutions Group (IBSG), the company's global consultancy, helps CXOs from the world's largest public and private organizations solve critical business challenges. By connecting strategy, process, and technology, Cisco IBSG industry experts enable customers to turn visionary ideas into value.

For further information about IBSG, visit http://www.cisco.com/go/ibsg.

Americas Headquarters
Cisco Systems, Inc.
San Jose, CA

Asia Pacific Headquarters
Cisco Systems (USA) Pte. Ltd.
Singapore

Europe Headquarters
Cisco Systems International BV Amsterdam,
The Netherlands

Cisco has more than 200 offices worldwide. Addresses, phone numbers, and fax numbers are listed on the Cisco Website at **www.cisco.com/go/offices.**