

Using ICT to Build Capacity in Developing Nations

Cisco forms strategic partnerships with international development organizations, businesses, and government agencies to deliver sustainable and effective capacity-building programs in developing regions of the world. This paper provides an overview of six programs that integrate information and communication technologies (ICT) to increase access to education and help individuals gain the knowledge and skills needed to improve their quality of life.

The Least Developed Countries Initiative



The digital divide between countries with access to ICT and those without was a topic of concern at the 2000 G8 Summit. As a result, Cisco, the United States Agency for International Development (USAID), the United Nations Development Program (UNDP), and the United Nations Volunteers (UNV) joined forces to establish the Least Developed Countries initiative (LDCi). The LDCi aims to help developing nations accelerate progress, move toward sustainability, and integrate into the

global economy by providing opportunities for individuals to develop valuable ICT skills.

To help ensure the participation of women in the LDCi, Cisco launched the Gender Initiative in April 2000. As a result of this initiative, each institution involved in the LDCi was required to maintain at least 30 percent female enrollment in their courses. Cisco partnered with Cisco Learning Institute to provide tools and best practices for universities and organizations to recruit and retain women.

In 2001, the International Telecommunications Union (ITU) joined the partnership and 58 LDCi academies were established in 20 developing countries. Cisco donated the Cisco[®] Networking Academy[®] curricula, e-learning infrastructure, and lab equipment, while USAID, UNDP, and ITU provided resources for instructor training. Cisco also partnered with the Institute of International Education, ITU, and Cisco Learning Institute to establish scholarship programs for women. UNV volunteers promoted sustainable recruitment practices, and by the end of the year, more than 1000 students were enrolled in the program.

Over the next two years, the LDCi grew to reach 40 developing countries. Based on the initial success of the initiative, Phase II began in 2004. The main objective in Phase II was to establish 100 academies at institutions such as refugee camps, all-female schools, and universities in remote cities throughout the African continent. By 2006, the LDCi had grown to encompass approximately 50,000 students at 250 academies in 50 countries.

In 2006, the LDCi partners and Cisco Learning Institute commissioned a third-party assessment of the initiative. Six representative countries were selected to participate in the study: Cameroon, Kenya, Nigeria, Senegal, Uganda, and Zambia; and more than 600 students, instructors, employers, and community leaders were surveyed to determine the effectiveness of the program.

The results of the study indicate that Cisco Networking Academy is having a strong, positive impact within participating communities by supporting education and ICT skills development, increasing access to job opportunities, and promoting self-confidence among students, particularly women. Since 2000, the Gender Initiative programs had impacted more than 21,000 women within 600 universities and organizations.

Nearly two-thirds of the students who participated in the survey found jobs after completing the program, and three-fourths of those employed are in positions that require networking skills. More than one in ten students who were surveyed also started their own businesses.

The long-term impact of the LDC initiative will become more apparent over time, and as students continue to raise their standards of living, our hope is that the economic and social well-being of their communities and their countries will also improve.

To learn more about Cisco Networking Academy, visit www.cisco.com/go/netacad.

The DIXES Program

DIXES, which stands for Donations to Internet eXchange points of Equipment and Support, began as a series of informal efforts to establish Internet Exchange Points (IXPs) in developing countries. Through the program, Cisco provides equipment to partner organizations in exchange for their advice and support in implementing IXPs.

Exchange points enable customers with different ISPs to exchange information locally, rather than traversing the Internet backbone through a long, expensive, and over-extended link. By enabling more efficient packet flow, with reduced costs and transit times, the DIXES program helps ISPs provide a higher quality of service to customers, leading to profit gains and increased use of the Internet. The growth of the Internet is a key factor in establishing the infrastructure needed to support digital participation, e-learning, and knowledge transfers in developing countries.

In conjunction with this program, Cisco provides funding and equipment to support the delivery of educational workshops organized by the African Network Operators Group (AfNOG). To learn more, visit www.afnog.org.

Lifelines India

Lifelines was launched in October 2006 through a partnership between Cisco, British Telecom, and OneWorld. The goal of Lifelines is to help rural farmers in India improve their efficiency and earning potential by providing critical and timely answers to agricultural and veterinary questions. Roughly 65 percent of workers in India are farmers, so crop failures or cattle illnesses can be catastrophic for individuals and the economy.



In India, where farmers have limited access to timely sources of information and are often illiterate, the telephone is the most powerful medium for information delivery. As a result, Lifelines comprises a phone-based information system that enables farmers to call the service line, submit their queries, and call back after 24 hours to hear responses provided by specialists from the Indian Society of Agribusiness Professionals.

The Lifelines service blends a Cisco Unified Messaging platform with an online application that is

used to forward queries to experts or pull answers from an FAQ database of approximately 40,000 items. Farmers pay a small fee of 5 Rupees (approximately 12 cents) to help sustain the cost of the service as it moves toward self-sufficiency.

Lifelines, which was initially launched in 85 villages, is now used by approximately 40,000 farmers in 700 villages, and handles an average of 300 calls per day. An independent study of farmers in three villages who use the Lifelines service showed an increase in product quality and productivity, resulting in 25 to 150 percent profit growth.

Egypt Education Initiative

In 2004, the government of Egypt initiated a series of reforms to improve their nation's global competitiveness by promoting the development of business and technology skills. This led to the establishment of the Egypt Education Initiative (EEI) in 2006. The EEI, which is supported by the World Economic Forum, Cisco, and numerous public and private organizations, aims to modernize the Egyptian workforce and help small to medium-sized businesses (SMBs) compete in the global knowledge economy.

Several barriers stood in the way of achieving these goals. The ICT industry in Egypt was developing slowly, and the level of business skills and ICT knowledge among SMB employees was low. The growth of small businesses is a critical component of Egypt's development strategy and many SMBs were experiencing a shortage of finances, poor labor skills, and low productivity. In addition, the country had a shortage of qualified teachers, and no standardized content was available to support the initiative.

The Egyptian Ministry of Communications and Information Technology (MCIT) quickly recognized that e-learning could play a central role in overcoming these barriers. As a result, they collaborated with the Cisco Internet Business Solutions Group (IBSG) to stimulate the development of the e-learning industry by delivering courses and training through the Egyptian E-Learning Competence Center (ELCC).

From the beginning, the MCIT strived to develop processes and an infrastructure for the ELCC that could later be duplicated to target other areas of the Egyptian education system. In addition to developing a Business Essentials e-learning curriculum that incorporates Cisco Networking Academy courses and iExecutive business management training programs, the ELCC provides instructor training and a Web-based e-learning authoring, delivery, and management system in support of the EEI.

The EEI initiative is beginning to transform the Egyptian education system and businesses. More than 350 academies have been established across the country to support the development of ICT skills at schools, universities, and other organizations. The ELCC has delivered the Business Essentials basic technology and networking course to more than 500 Egyptian professionals, and the course is expected to reach 10,000 SMB owners and managers by 2010. The center has also developed and rolled out custom executive training courses for Egyptian SMBs. EEI leaders believe the program now provides a comprehensive curriculum that is preparing Egyptian businesses to participate and thrive in the modern, global economy.

United States Telecommunications Training Institute

The United States Telecommunications Training Institute (USTTI) is a nonprofit, public-private partnership between senior federal officials and leaders of the U.S. ICT and broadcast industries. The USTTI delivers technological and managerial skills training to individuals who regulate and

maintain ICT infrastructures throughout the developing world. The USTTI offers 88 tuition-free training courses that are delivered by hundreds of volunteer trainers across the United States.

As a corporate board member, Cisco hosts two 3-week USTTI training workshops in San Jose each year, and helps finance the general overhead costs. All workshops are led by Cisco engineers who volunteer their time to teach the courses, and some students receive scholarships from USTTI and USAID to cover their travel expenses. Cisco also provides breakfast and lunch for participants and brings the students to San Francisco for a day of doctor visits, shopping, and entertainment.



The most recent workshop, in November 2007, covered ISP and backbone routing protocols, network fundamentals, VoIP, and network security. The students were from Albania, Eritrea, Ghana, Iraq, Kenya, Kyrgyzstan, Mongolia, Nepal, Nigeria, Pakistan, Peru, the Philippines, Tajikistan, Tanzania, Uzbekistan, and Zambia. In all, more than 300 students have completed USTTI workshops at Cisco.

Since 1983, the USTTI has delivered nearly 1500 training courses to more than 7000 women and men who are the key ICT regulators, managers, and service providers in 165 developing countries.

To learn more, please visit <http://ustti.org>.

Digital Inclusion Network

Cisco volunteers recently began working on a prototype for a Digital Inclusion Network (DiNet). The goal of the project is to provide a comprehensive and sustainable solution for low-cost, wireless Internet connectivity in poor, rural, and isolated communities. The solution must be affordable, rugged, and easily implemented in a variety of low-to-no power environments.

The model for the project rollout includes a low-cost wireless network kit, local training and capacity-building services, microfinancing and other forms of support for local entrepreneurs, a certification process for local support technicians, and the implementation of value-added services through public-private partnerships.

During the pilot phase, a training package will be developed in partnership with Networking Academy curricula developers and three nonprofit Wireless providers: Inveneo, AirJaldi, and WiLAC. Three networking academies in Africa will also be selected to roll out the training package. Graduates from these academies will be trained to build wireless network kits and oversee the establishment of 30 Wireless Internet Service Provider (WISP) training centers in rural areas. Cisco will also initiate discussions with equipment and application providers to identify local services that can be integrated into the WISP training and network kit development processes.

By implementing this program, the DiNET development team and partners hope to increase access to information, education, and career development opportunities in developing regions of the world.