Generating youth employment through information and communication technologies: best practice examples and strategies

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> *South African Communications Minister Ivy Matsepe-Casaburri, in opening an ICT jobs summit on 3 June 2002:*
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> *'This knowledge revolution is upon us, we cannot wish it away,' she said. 'The question is how we respond to it.'*
>
> *She called on delegates to find imaginative ways in which the labour force can be educated to take advantage of the jobs available as requirements shift from low-skilled to highly-skilled. 'There should be a concerted campaign for a comprehensive re-skilling of our people,' she said.*[2]

Executive summary

The focus of this paper is on best practice examples of the use of information and communications technologies (ICT) to generate youth employment. Particular attention is paid to best practice examples from low and middle-income countries. Examples of ICT-related employment opportunities for young people are used to illustrate five best practice principles: promoting youth entrepreneurship; promoting public-private partnerships; targeting vulnerable groups of young people; and bridging the gap between the digital economy and the informal sector and putting young people in charge.

The initiatives described in the paper confirm that the constraints on ICT access that apply in high-income countries, are much less important in the different social context of developing countries.[3] The best practice examples cited show that ICT access does not require personal ownership of a computer; nor does it require the use of expensive computers. Some best practice examples also show that other infrastructure constraints such as electricity supply can also be addressed. Nor is the use of the Internet limited to English speakers or even the literate.

The final part of the paper offers fourteen recommendations aimed at promoting ICT-related opportunities for young people. The digital divide is real and best practice examples of ICT-generated employment for young people are not necessarily easy to repeat elsewhere. This paper seeks to balance optimism about ICT's potential with an awareness of the constraints that obviously exist for many developing countries.

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[1] This paper draws on and extends the analysis presented in two earlier papers: Curtain, R, 2000, 'Identifying the Basis for a Youth Employment Strategy Aimed at Transitional and Developing Countries', commissioned by the United Nations Social Development Division and 'Promoting youth employment through information and communication technologies (ICT) Best practices examples in Asia and the Pacific', prepared for ILO/Japan Tripartite Regional Meeting on Youth Employment in Asia and the Pacific Bangkok, 27 February - 1 March 2002.

[2] Phillip De Wet, 2002, 'Historic ICT jobs summit opens', IT Web, Johannesburg, 3 June http://www.itweb.co.za/sections/business/

[3] Prahalad, C.K. (2000): 'Let 's focus on the digital dividend: Conventional mental models may be an impediment to the diffusion of internet benefits to poorer countries', in *European Business Forum,* (http://www.ebfonline.com/at_forum/at_forum.asp?linked=32&id=26).

Contents

Introduction

The world's young people now number more than they ever have. About half of the globe's population of 6.2 billion people are under the age of 25. In nearly all the Middle Eastern countries, more than half the population is under the age of 20. Another billion young people will be added by 2015. By then, the world's largest proportional youth populations will be living in Afghanistan, Iraq, Pakistan, Saudi Arabia and Yemen. Following next will be Gaza, the West Bank and Mexico, and large parts of sub-Saharan Africa.[4]

The Heads of State and Governments in the United Nations' Declaration at the beginning of the new Millennium resolved, among other things, 'to develop and implement strategies that give young people everywhere a real chance to find decent and productive work.' The Secretary General of the United Nations, in his report to the Millennium Assembly, highlighted the need to 'explore imaginative approaches to this difficult challenge.'

The starting point for this paper is the recognition that no country can afford to ignore information and communication technologies (ICT) as an employment generator, whatever their stage of development. Although this technology may not be of decisive importance to the poorest countries, it still exerts a major influence on their ability to acquire knowledge and tap into global networks.[5] As a recent report on 75 countries access to ICT has noted:

> *ICTs have yet to be adopted or used by most of the world, but it is those people who have not yet used the Internet or spoken on a telephone who perhaps have the most to gain from the potential of ICTs*[6].

The paper seeks to go beyond merely providing illustrative anecdotes about where ICT has helped to create job opportunities for young people. Also identified are strategies and actions that need to be taken by governments, non-government organisations, businesses and young people themselves to enable ICT's to have an impact on employment in low and middle income countries in particular.

The first part of the paper defines what information and communications technologies refer to, and looks at the differences in ICT capacity among countries, with a focus on countries on the Africa continent. Also discussed are the principles used to highlight the best practice examples.

The second part of the paper presents information on the best practice examples. The third part of the paper discusses, in more general terms, some common misconceptions about the use of ICT in developing countries, the potential gains ICT offers in relation to youth employment and society more widely, and the obstacles developing countries in particular face in trying to realise these benefits. The final part of the paper makes fourteen recommendations aimed at promoting ICT-related opportunities for young people.

Part 1: The context

1.1 ICT defined

ICT can be broadly defined as a set of activities that facilitate, by electronic means, the capturing, storage, processing, transmission, and display of information.[7] This paper uses the

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[4] Phyllis Oakley, 2002, Washington Post (A15), 17 April.
[5] ILO, 2001, *World Employment Report 2001: Life at Work in the Information Economy*, Geneva, p. 52.
[6] Kirkman, G; J Sachs, K Schwab and P Cornelius, 2002,The Global Information Technology Report 2001–2002: Readiness for the Networked World, Oxford University Press, New York, p xiii.
[7] OECD definition cited by Cynthia Hewitt De Alcántara (2001): *The Development Divide in a Digital Age: An Issues Paper*, UNRISD, Technology, Business and Society Programme Paper Number 4, August 2001, United Nations Research Institute for Social Development, Geneva , p. 3.

term information and communication technologies (ICT) to encompass the production of both computer hardware and software as well as the means of transferring the information in digital form. It also includes low cost forms of communication such as radios.

Another term commonly used to describe the changes produced by information technology is the digital economy. This expression emphasises the new opportunities created by transforming information into a binary digital code. The digital economy refers to more than the boom and bust cycle of many new ventures aiming to tap the potential of the Internet for commercial purposes. The more profound effect of ICT is likely to be in improving the efficiency and reach of the mainstream production of goods and services, in both the public and private sectors of the economy.

1.2 Socio-economic differences and ICT capacity

Clearly not all countries have an equal opportunity to generate employment opportunities for young people through ICT. Countries vary widely in their capacity to participate in technological innovation. The UNDP's *Human Development Report* computes a 'technology Achievement Index' to show how well a country as a whole is participating in creating and using technology.[8] The Technology Achievement Index is based on four components: the capacity to create new products and processes through research and development; the capacity to diffuse new and old technologies in production and consumption (viewed as two separate as separate capabilities); and having the skills for technological learning and innovation.[9] (see Table 1).

Table 1: Four groupings of African countries based on the Technology Achievement Index

Category	**Brief Definition**	**Countries in Africa (where data available)**
Leaders	High achievements in technology creation, diffusion and skills – at cutting edge of self-sustaining technological innovation	
Potential leaders	Have high-level human skills but limited capacity to innovate. Low ranking in diffusion of recent innovations or of old inventions	
Dynamic adopters	Have important high-technology industries and technology hubs, but diffusion of old inventions is slow and incomplete	South Africa, Egypt, Algeria, Tunisia
Marginalised	Technology diffusion and skill building limited – population has not benefited from diffusion of old technology	Senegal, Ghana, Kenya, Tanzania, Sudan, Mozambique

Source: UNDP (2001): *Human Development Report 2001: Making new technologies work for human development*, published for UNDP, Oxford University Press, New York, pp. 39 & 45.

Table 1 presents shows which countries on the African continent achieve a rating on the index. No countries in the Africa are classified in the 'leaders' category. Nor are there any African countries in the 'potential leaders' group, defined as countries which have invested in high levels of human skills and diffused new technologies widely but still needs to show that they can innovate in their own right. Outside of Europe, the countries that fall into the 'potential leaders' group are: China (Hong Kong SAR), Malaysia, Mexico, Argentina, Costa Rica and Chile.

The third grouping, classified as 'dynamic adopters of new technology,' for Africa are: South Africa, Egypt, Algeria and Tunisia. These countries have important high-technology industries

[8] UNDP, 2001,: *Human Development Report 2001: Making new technologies work for human development*, Published for the United Nations Development Programme (UNDP), Oxford University Press, New York.
[9] Ibid, p. 39.

or high technology 'hubs', but the diffusion of inventions is regarded as slow and incomplete.[10] A fourth group of countries is defined as 'marginalised' because their scores on the index reflect low technology diffusion and low levels of skill building. In Africa, these countries are: Senegal, Ghana, Kenya, Tanzania, Sudan, and Mozambique. Many other countries in Africa do not score a rating at all due to the lack of available data.

Another indicator of country differences in ICT capacity is income per head of population. This offers a cruder but more encompassing grouping of countries. According to this indicator, on the African continent, for example, most countries (37 out of 51) are in the 'low income' group while eight countries are in the 'lower middle income' group (Algeria, Cape Verde, Egypt, Equatorial Guinea, Morocco, Namibia, Swaziland and Tunisia). Some six countries are in the 'upper middle income' group (Botswana, Libya, Mauritius, Mayotte, Seychelles and South Africa). No country on the African continent is classified as a 'high income' country. Clearly, low-income countries are not likely to have the same potential to make use of ICT as an employment generator as the higher income countries. This is due to differences in ICT infrastructure such as access to computers and capacity to connect to the Internet.

However, income per head of population is not necessarily the best indicator of a country's ICT employment potential. Income per head of population does not take into account the differences in income levels within countries. Each country has differing proportions of its population who are highly skilled workers, lesser-skilled workers and the marginalised who often have low levels of education or illiteracy.[11] In the large population countries of India China, and Brazil, the highly skilled group is larger than the size of the total population of many smaller countries. At the end of 2000, the Indian IT software and services sector employed 410,000 professionals.[12] In 1998, India's 350 universities and engineering colleges and 700 private colleges and technical institutes produced 65,000 engineers at university-degree level or higher.[13] India's pool of engineering skills is said to be second only in size to that of the United States.[14]

The digital divide that operates between countries also operates within countries. Malaysia's National Information Technology Council has identified five segments of Malaysia's population as being under threat of marginalisation by the ICT revolution. These groups, comprising almost half the country's population, are: senior citizens, youth, women, people with different abilities, and geographically isolated communities.[15]

1.3 Best practice initiatives and different income groups

Therefore, differences in income levels are a useful starting point for distinguishing between types of best practice ICT initiatives related to youth employment opportunities. This applies not only to countries as a whole but also within countries, particularly in the case of the large population countries. Employment opportunities, for example, are open to young people with high tech skills such as software engineering in countries in India or abroad in high-income

[10] Technological 'hubs' are defined on the basis of a rating on four criteria: the ability of area universities and research facilities to train skilled workers or develop new technologies, the presence of established companies and multinational corporations to provide expertise and economic stability, the population 's entrepreneurial drive to start new ventures and the availability of venture capital to ensure that the ideas make it to market (.UNDP, 2001, p45).
[11] Butler, C (2000): 'Inequality, global change and the sustainability of civilisation,' in *Global Change and Human Health*, Vol. 1, No. 2 (http://www.baltzer.nl/kaphtml.htm/GLOB1) .
[12] National Association of Software and Service Companies (India): 'Domestic Software' (http://www.nasscom.org/it_industry/domestic_sw_services.asp#statistics).
[13] Rohwer, J (2001): *Remade in America: How Asia will Change Because America Boomed*, John Wiley and Sons (Asia), Singapore, p. 247.
[14] Ibid
[15] NITC's Social Digital Inclusion Program aims to address these community groups to ensure that the digital divide is bridged for every sector in the community. See http://www.nitc.org.my/spa/index.shtml

countries. However, these opportunities are relatively few in number compared with the overall size of the youth population in the countries under consideration.

Other employment opportunities created by ICT are middle income in focus. These are options better suited to young people with upper secondary or tertiary qualifications more generally. Examples of these employment opportunities are call centres and remote processing in developing countries, which provide services directly to customers or to service providers between countries.

A third broad category of employment options created by ICT can be termed low-income options. As explained further below, these include the use of mobile phones to generate income. Other low income opportunities can be generated through micro and small enterprises providing access to a wider range of ICT services such as faxes and the Internet through telecentres or cyber cafes in Asia and Africa.

1.4 Sources

The best practice examples cited below draw heavily on web-based information and from recent reports by the International Labour Organisation, particularly its comprehensive 2001World Employment Report entitled *Life at Work in the Information Economy*. The CD-ROM version of the report also includes a number of relevant country-specific and general background papers. Another valuable source of information on best practice ICT projects is the finalist and winners list for the 2001 Stockholm Challenge Award, based on 742 entries from 90 different countries. The Stockholm Challenge Award focuses on the positive effects of the information society. An international jury judges best practice in IT projects largely in terms of the social benefits produced.

1.5 Perspective based on five key principles

As noted in the Introduction, the UN Youth Employment Network, an initiative of the UN, in collaboration with the World Bank and the International Labour Office, has produced a series of recommendations in relation to youth employment.[16] These recommendations urge Governments to incorporate youth employment goals into comprehensive employment policies and to stimulate broad-based employment-intensive growth as the best means of creating employment for young people. In particular, four areas are highlighted for national action:

- Employability: the need for governments to invest in education and vocational training for young people, and improve the impact of those investments;
- Equal opportunities: the need for governments and enterprises to give young women the same opportunities as young men;
- Entrepreneurship: the need for governments to make it easier to start and run enterprises to provide more and better jobs for young women and men; and
- Employment creation: the need for governments to place employment creation at the centre of macroeconomic policy.

Recommendation 5 of the High-level Panel emphasises the importance to youth employment prospects of tapping the potential of ICT. Seven specific ways are proposed for governments to give effect to this recommendation. The first is the need for governments to provide opportunities for young people to acquire ICT literacy, technical skills in ICT, and to look to ICT industries to provide employment or entrepreneurial opportunities for young people. Governments are also exhorted to make greater use of both new and traditional information and

[16] See http://www.un.org/esa/socdev/youthemployment/yenpr.doc .

communication technologies as tools for development and to close the ICT gender gap in terms of access to ICT. Governments are encouraged to use infrastructure development and appropriate trade and fiscal policies and legislative frameworks to create an enabling environment for ICT diffusion. Finally, governments are urged to use public-private partnerships to bridge the digital divide.

The following principles, first proposed by the author in a background paper for the Secretary General's Youth Employment Network, serve to highlight key themes in the recommendations of the High-level Panel.[17]

(i) the importance of the role of youth entrepreneurship in creating employment opportunities from ICT;

(ii) the value of public-private partnerships in making the most of the employment potential of ICT for young people;

(iii) how ICT opportunities can also assist vulnerable groups of young people;

(iv) ways that ICT can help link the informal sector to opportunities in the world economy, and;

(v) the importance of putting young people in charge, starting with young people's input and to ensure that they have a key responsibility for the outcomes.

Part 2 of the paper presents best practice examples of the five principles in operation. In some instances, the an example illustrates only one principle; in other instances it illustrates several of the principles.

Part 2: Best practice examples of ICT – generated employment opportunities for young people

2.1 ICT employment generation through youth entrepreneurship

Young entrepreneurs have been closely identified with ventures associated with the digital economy and the spread of the Internet in particular. This has been particularly the case in countries such as USA, UK, Japan, China, India, and Singapore. The following section offers examples of how young people have used ICT as a launching pad for initiating a range of entrepreneurial activities. It first outlines low-income generation opportunities, involving telephony and the use of mobile phones in particular. This is followed by a discussion of the role of young people as information intermediaries and opportunities for e-commerce in remote communities. The focus then moves to middle-income entrepreneurial opportunities in the form of telecentres. The section concludes with a discussion of the obstacles that young entrepreneurs are likely to face. In particular, the problem of access to credit and the role of micro credit is discussed.

Low-income ICT opportunities for youth entrepreneurship

The worldwide expansion of mobile phone networks and the growth in the number of mobile phone subscribers has been phenomenal in recent years. Between April 2000 and July 2001, the total number of mobile phone subscribers in the world increased by over a third to 860 million.[18] Over the same period, in the Asia-Pacific region the number of GSM subscribers (the largest

[17] Curtain, R (2000): 'Identifying the Basis for a Youth Employment Strategy Aimed at Transitional and Developing Countries,' commissioned by the United Nations Social Development Division (http://www.un.org/esa/socdev/youthemployment/research.html).

18 See http://www.gsmworld.com/membership/ass_sub_stats.html.

network) increased by 56 per cent to 182 million.[19] China has the third largest mobile telephone network in the world and by 1999 had 98.4 million subscribers.[20]

Selling telephone-based services

The availability of mobile phone networks in many low-and middle-income countries opens up many opportunities for young people. One common option is to purchase a mobile phone through a micro credit program and to earn income by providing low cost phone calls to others, as illustrated in the story below about a 16-year-old schoolgirl in rural India (see Box 1).

Box 1: On-selling telephone-based services

Every day at 8 a.m., her straight black hair tied neatly in a braid, 16-year-old Neelam Aggarwal rides almost 5 kilometres to school in a horse-drawn buggy. She would like to be a doctor someday. But for girls like Neelam, who lives in the dusty, impoverished village of Farah in India's northern state of Uttar Pradesh, such a vocation seems remote. For starters, her school—like most village schools in India--doesn't even offer science classes for girls.

Still, Neelam, one of eight daughters of a sweets maker, has no intention of becoming a housewife. "I want to make something of myself," she says. So each day after school, Neelam operates what amounts to the village's only public telephone--a cellular phone owned by Indian cellular operator Koshika Telecom. By charging her fellow villagers to make calls, Neelam can make as much as US$8.75 on a really good day. She's saving the money for computer classes, which she hopes will lead to a good job….

Source: *Business week Online*, 11 October 1999.

The potential of mobile phones to create low-income earning opportunities for young people is further illustrated by the Grameen Village Pay Phone program (VPP). Grameen Bank is a pioneer of small loans to the poor. Since its founding in Bangladesh in 1976, Grameen Bank has grown to lend US$3.46 billion to nearly 2.4 million borrowers (November 2001).[21] The Village Pay Phone program makes it possible for a Grameen borrower to buy a mobile phone, and then to make the telephone available for others in the village to pay for phone calls, to send short message services (SMS) and to enable villagers to receive incoming calls. Grameen Telecom charges Grameen borrowers a wholesale airtime rate.[22]

Grameen Village Pay Phones operates in more than 2,000 villages in Bangladesh in September 2000 and an average of 100 additional villages are being connected each month. A typical pay phone owner can earn up to four times the average per capita income in Bangladesh (see Box 2). The phones are used for a variety of purposes. Farmers use them to find out where they can get the best prices for their crops, and relief workers are able to better coordinate disaster response measures. Villagers are also able to use the phones to communicate with local government officials.

Grameen Telecom is itself is a good example of entrepreneurial activity supported by partnerships with international agencies, international companies and other funding sources. The potential of Grameen Telecom as an income generator has been acknowledged by an international consortium led by the World Bank's International Finance Corporation, which has

19 Ibid.
20 'National report on the ICT sector in China,' background paper for World Employment Report 2001, para. 1.1.
21 See Grameen Foundation USA web site (http://www.gfusa.org/). In November 2001, there are 1,170 Grameen branches in Bangladesh and 105 micro credit organisations in 34 countries operating on the same Grameen model.
22 For details, see 'Grameen Telecom' (http://www.grameen.org/) and 'Grameen Telecom Connects Thousands,' *in Grameen Connections: The Newsletter of the Grameen Foundation USA*, Vol. 3. Issue 4. October 2000. (http://www.gfusa.org/newsletter/fall00/telecom.shtml)

invested US$50 million in the project. The Norwegian company Telenor has invested US$25 million, and the Soros Economic Development Fund invested US$10.6 million.[23]

Box 2: Grameen Telecom's Village Pay Phones as an income generator

Low cost communications enable rural households and small enterprises to take advantage of market information to increase profits and reduce productive expenses. A Canadian evaluation of the pilot project for Grameen Village Pay Phones found that the income that operators derived was on average about 24 per cent of their household income - and in some cases it was as high as 40 per cent of household income. The evaluation report recommended that youth be offered small loans to establish public call offices or kiosks to provide a range of services including telephone, fax, e-mail and access to the Internet as well as photocopying and computer word-processing services.

The evaluation showed that the basic Village Phone package in 1999 cost US$310. The VP operator pays for the phone through weekly loan payment instalments equivalent to US$4.50. These payments are made through the local Grameen Bank branch, which is responsible for collecting on the repayments. For the usage charge, the VP operators pay a minimum monthly bill of approximately US$3.20. This includes a monthly fee for the line, Value Added Tax (VAT), a service charge, and a fee for the annual government license and a royalty fee. Actual airtime charges are added on top of all this.

Source: Canadian International Development Agency (CIDA) (2000): *Grameen Telecom's Village Phone Programme in Rural Bangladesh: A Multi-Media Case Study Final Report*, pp. 2, 11, 15. (http://www.telecommons.com/villagephone/).

Young people as 'information intermediaries'

The widespread use of English on the Internet has created the need for local content and applications to enable non-English speakers to make effective use of it. For the poor in particular, the vast amount of information on the Internet requires an intermediary to sift through it to identify what is relevant and then interpret it in the light of the local context.[24] Young people are well placed to perform this role of 'information intermediary' (see Box 3). For example, young people can use their knowledge of how to access the Internet and combine it with other forms of communication such as radio. In Sri Lanka and Mongolia, for example, local populations have gained access to information on the Internet through community radio networks. Radio stations use facilitators to search the Internet for information sought by local communities and broadcasts the information in their language (see also Box 4).[25]

Box 3: Young women as information intermediaries

… information intermediaries would be useful in connecting rural women with the information they need. They could be extension agents, community workers, or simply young school girls from the community who know English and can use computers, who would work at community centers to get information from international sources and relay it to local women farmers. They could also assist the farmers in two-way communication, delivering their messages transmitting indigenous knowledge, requesting agricultural advice, and sending e-mail from the farming community to the research station.

[23] Telenor is a Norwegian telecommunications company with operations in a number of countries in Europe and Southeast Asia. The company is Norway's leading distributor of voice, information, knowledge and entertainment through a broad range of modern communications services. Telenor became a listed company in December 2000.

[24] ILO (2001): *World Employment Report 2001:Life at Work in the Information Economy, G*eneva, p. 58.

[25] ILO (2001): *Generating decent work for young people: An Issues Paper*, prepared for the Secretary-General's Youth Employment Network, p. 9. (www.un.org/esa/socdev/youthemployment/)

The involvement of school girls translating and passing information to their mothers might stimulate them to consider remaining in rural areas and taking up modern farming as a career. For most farming communities, a dedicated donor-financed telecenter would not be necessary to do this. All that is needed is a PC with the capacity to receive/send faxes, a telephone connection with Internet access at the community center and a small stipend for the school girls, at a cost of roughly $1000 per community per year.

Source: Hafkin, N. and Taggart, N. (2001): *Gender, Information Technology, and Developing Countries: An Analytic Study,* for the Office of Women in Development, Bureau for Global Programs, Field Support and Research, United States Agency for International Development, June, p 46.

Another option is for young people to use their skills in information technology to develop simple web sites in local languages. For example, India's Swaminathan Foundation has set up Village Knowledge Centres, with special websites to provide a variety of locally relevant content. Another example is Warana Nagar rural network project, in Maharashtra State in India, The district has 70 villages and is known for the strength of its cooperative societies. Villagers are using 'facilitation booths' to access agricultural, medical and educational information on the Internet. The technology includes 10 computer servers, two small aperture terminals (VSATs), and about 165 personal computers.[26]

India offers several examples of web-based support for multilingual publishing on the web.[27] India's Centre for Development of Advanced Computing has recently launched a multilingual webware program called the iLEAP-ISP. A multilingual word processor with Internet and e-mail support in Indian languages is made available free to all Internet subscribers through their Internet Service Provider. Also in India, the Tamil Nadu Government has launched a US$1.25 million Tamil local language initiative to promote online content and has given its backing to develop a standardised keyboard for Tamil.[28]

Opportunities for young people to improve local content may, for example, require finding partners to finance the development of a font for a local language to use on the World Wide Web. Potential partners could be a publicly funded program, private enterprise support or funding from language speakers now working in high-income countries. Local web content could include not only information on government services but also ways to develop existing income generating activities or set up new ones. The web site could also include detailed information about NGO programs to address poverty.

In association with the agency responsible for delivering a program, an information intermediary could also use the web site to invite the poor to offer feedback on specific local issues of concern to them. For example, the people who are the target group of a poverty alleviation program could be invited through e-mail to comment on the limitations of a current poverty program and to suggest improvements.[29]

Box 4: The Internet facilitating the use of Community radio

Developing Countries Farm Radio Network has produced hundreds of scripts, suitable for radio, about subjects that farmers find helpful. The information … encourages sustainable agriculture that requires only resources ordinarily available to small-scale farmers. Our nutrition and health advice is simple, safe and practical. We also produce scripts about cooperatives.

Easy-to-adapt radio scripts help rural broadcasters promote awareness of HIV/AIDS, and

[26] ILO (2001): *World Employment Report 2001 Life at Work in the Information Economy*, Geneva, p. 59.
[27] See www.heise.de/tp/english/inhalt/co/5199/1.html.
28 Accenture, Markle Foundation and UNDP (2001): *Creating a Development Dynamic: Final Report of the Digital Opportunity Initiative*, footnote 73 (http://www.opt-init.org/framework/pages/notes.html#73).
29 ILO (2001): *World Employment Report 2001:Life at Work in the Information Economy*. Geneva, p. 59.

offer coping strategies for affected farm families and communities. The Developing Countries Farm Radio website also includes training materials to help broadcasters use the scripts effectively.

Source: http://www.farmradio.org/english/published_scripts.html

Opportunities for e-commerce-based entrepreneurship in remote communities

Other low-income generating opportunities are available to young people in remote locations. The Los Angeles-based Greenstar Foundation is setting up self-contained, solar-powered community centres in remote communities on the West Bank, India, Jamaica, and Ghana.[30] Each centre offers an Internet connection, health facilities, including telemedicine, a classroom complete with distance learning equipment, and a business centre, through which traditional cultural products can be sold via the Internet. Traditional art, music, photography, legends, and storytelling in small villages can be recorded and brought to global markets through the Internet. Revenues are returned to the village to support their ongoing, independent development.

The projects are deliberately targeting areas without electricity. The approach is to use this market mechanism to sell cultural products in digital formats to pay for the hardware and connections needed and to produce ongoing revenue without the need for external funding. The projects are the product of public-private collaborations between governments, local ICT companies and international funding sources.[31]

To demonstrate what it is seeking to do, the Greenstar Foundation web site offers for free download more than 40 compressed music files made in a Bedouin village on the West Bank, a mountain village in Jamaica and a tribal village in central India.[32] The technology for the Indian Greenstar centre consists of a 600 watts peak photovoltaic Solar Power Array to power a Pentium III computer, a small, portable satellite terminal to provide wireless Internet connections and a 16-track Digital Audio Tape recorder (see Box 5).[33]

Box 5: Start an E-commerce Movement: Greenstar India introduces solar power, the Internet and 'digital culture' to rural India

New Delhi and Los Angeles, October 2, 2000: Greenstar India announced today that it will build 50 solar-powered community and e-commerce centres in remote villages throughout India over the next three years. To generate income through e-commerce, Greenstar villages focus on India's vivid traditional culture -- authentic art, music, legends, literature, history and sacred way of life, long a source of fascination by people everywhere in the world. Greenstar is employing a team of artists and teachers to record elements of rural Indian culture, working closely with the people of each village. This original concept is already working in the Palestinian Authority and Jamaica. The result will be a powerful, unique collection of 'digital culture' -- a gallery of music, artwork, photographs, video, poetry and other arts, which can be distributed in high-resolution digital form throughout the world, instantly and efficiently.

The revenues from digital culture will be used to fund basic needs of each village for its future, as decided by the people themselves -- deploying tools that include clean solar power, telemedicine and vaccination resources, basic education, micro-credit, community organizing, and a high-speed, two-way connection to the world through the Internet.

Source: http://www.e-greenstar.com .

30 See http://www.greenstar.org/.
31 For details of the support for the Indian Greenstar project, see http://www.e-greenstar.com/.
32 See http://www.e-greenstar.com/.
33 See http://www.e-greenstar.com/India/launch/Press-release.pdf.

Middle-income entrepreneurship opportunities for young people

Middle-income entrepreneurial opportunities can also be identified involving the use of ICT in the service sector focusing on domestic markets. The ILO, in a paper entitled *Generating decent work for young people,* notes that some developing countries have been able to create employment for thousands of women and men through community-access points and telecentres.

> *Such facilities can also offer small and micro-enterprises that do not have their own private facilities, the opportunity to use ICT for business purposes. … Young people are particularly well placed to take advantage of such growth areas.*[34]

Telecentres as income generators for young people

Telecentres are being set up through public and private initiatives in many developing countries in telephone shops, schools, libraries, community centres, police stations, and clinics. Sharing the expense of equipment, skills and access amongst an ever-increasing number of users also helps to cut costs and make these services viable in remote areas.

UNESCO have produced a user-friendly manual on how to set up several different types of community-based Telecentres.[35] It is aimed at telecom operators, NGOs, community groups, local government or someone wanting to establish a small business. The manual outlines how to set up four types of telecentres. At the most basic level, 'micro telecentres' use only pay phones and possibly a smart card reader and a receipt printer. They are usually housed in a shop or other business and some are outdoor kiosks. 'Mini telecentres' usually offer a single phone line (possibly mobile phone) with a three-in-one scanner/printer/copier, a fax machine and a PC with a printer, Internet access and a call meter. A 'telecentre' offers a number of phone lines, a call management system, fax machine, photocopier, several PCs with a printer, Internet access and perhaps a scanner. Finally, a 'full service telecentre' offers many phone lines, and multi-media PCs with Internet access. Other equipment can include a high-volume black and white and/or colour printer, a scanner, a digital camera, a video camera, a TV, an overhead projector, a photocopier, a laminator, meeting rooms, and a video conferencing room.

Telecentres in Africa and India

Telecentres have been established in Africa. Senegal, the country of just under 10 million, is said to have some 9000 telecentres based around the telephone which are all privately owned. There are also said to be up to 500 'cybercafes', with a minimum of 10 computers connected.[36] Mobile telecentres are operating in Nigeria (see Box 6).

Box 6: Mobile Community Telecentres in Nigeria

Fantsuam Foundation in Nigeria, established in 1996, has been a pioneering NGO in facilitating access of its members in rural communities to microcredit and ICT services for health, education and economic empowerment..

Fantsuam uses ICT access as part of a larger programme that addresses other basic problems confronting women. They have a microcredit program and connected to this is IT skills training and provision of ICT access.

[34] ILO (2001): 'Generating decent work for young people: an issues paper prepared for the Secretary-General's Youth Employment Network,' p. 8.
[35] Jensen, M & Esterhuysen, A (2001): *The Community Telecentre Cookbook for Africa Recipes for self-sustainability: How to Establish a Multi-purpose Community Telecentre in Africa*, UNESCO, Paris.
[36] Frederick Noronha, 2002, 'Africa and South Asia: ICT Lessons for Each Other', article posted to Global Knowledge Development Online Discussion group, 13 April, 2002.

The goal is to provide Internet access, in an affordable manner, through a Mobile Community Telecentre in Kunyai, Nigeria, where there is no electricity or phone lines.

The Mobile Community Telecentre is a van that can carry up to four computers from one rural community to the next within a 20 mile radius. Through its Mobile Community Telecentres, Fantusam provide face-to-face technical support and conduct introductory training programs for NGOs new to technology.

Source: 'Kabissa - Space for change in Africa', 15 April, 2002, http://www.iicd.org/base/story_read_y?id=4963

India has seen a rapid growth in 'cyber kiosks' or 'telekiosks' which can provide access to business support services for underprivileged groups.[37] These 'Internet kiosks' are often upgraded STD (Subscriber Trunk Dialling) booths that are common in India. These are small street shops, offering access to public phones for long distance calls. They number about 300,000 and have generated more than 600,000 jobs.[38]

Internet cafés are prominent in Tanzania as well. Accurate figures are not available, but the proliferation of Internet Cafés in Tanzania (particularly in Dar Es Salaam, where some people estimate a thousand) indicates that there is great, unsatisfied demand in the country for some form of connectivity. There are presently thirteen licensed ISPs in Tanzania. Communications Industry insiders give estimates of between 10 000 to 15 000 dial-up accounts in the country, with many more users via Corporate local area networks.[39]

Communal access to Internet facilities through telecentres or Internet kiosks offers opportunities for informal sector workers such as plumbers, vendors, roadside restaurant owners or garment makers to obtain information on markets or administrative procedures, and to publicise their services to a wider clientele.[40] Communal access to the Internet is also useful for self-employed professionals such as journalists and accountants. These professionals may not have the funds to purchase equipment and technical support to communicate with distant clients.

Telecentres or Internet kiosks offer a good opportunity as they involve fairly low start-up costs. Equipment costs in India are about US$10,000 and the telecom service provider's investment in a telephone line is about US$ 1,000.[41] Young people especially have a particular advantage in being able to set up such enterprises because computer literacy and familiarity with maintaining computer hardware are required to operate such kiosks.

Problems faced by young entrepreneurs

Entrepreneurship is not an easy option and is best suited to those with the necessary skills and acumen. Some of these skills can be acquired, even via the Internet (see Box 7). However, some skills such as risk taking and self-confidence may be more deep seated. Young people starting their own businesses are likely to experience a range of problems. Many of these problems apply to anyone starting a new enterprise but some problems are related to the youthful age of the entrepreneur. Young people are likely to have limited business networks and contacts compared with older people. They also are likely to have fewer financial resources

[37] Mitter, S. and Millar, J: (2001): 'The impact of ICT on the spatial division of labour in the service sector - Employment and trade in the digital economy,' Background Paper, in *ILO World Employment Report 2001*, section 4: From teleworking to tele-networking.
[38] ILO (2001): *World Employment Report 2001*, p. 38.
[39] Miller, Esselaar & Associates, 2001, *A Country ICT Survey for Tanzania.* Swedish International Development Cooperation Agency, Stockholm.
[40] ILO (2001): *World Employment Report 2001*, p. 37.
[41] Mitter, S. and Millar, J: (2001), ibid, para. 4.

as they have had less time to accumulate personal savings or acquire property. They may also experience age discrimination from customers, suppliers or finance lenders.[42]

Box 7: Promotion of youth entrepreneurship through ICT in schools

The Schoolnet Internet Learning Centres in Uganda have been set up by the country's Education Department to promote youth employment through giving young people entrepreneurship and leadership skills using ICT-based training and resources. The project was one of 100 finalists for the 2001 Stockholm Challenge.

Some thirty ICT resource centres, each comprising ten networked computers and a server, with printers and modems, have been set up in Ugandan schools. The resource centres service between 200 and 1000 young people per month.

The goals of the project are to: develop youth leadership, team building and business skills; promote youth employment through linkages with local industry/business; create new youth-led business opportunities and encourage young people to exchange business ideas and information via e-mail. Youth who participate in the project are given an opportunity to develop business concepts and plans that draw upon the ICT resources available at the centres.

Sources:http://www.challenge.stockholm.se/new_tavlande_index.html, http://www.iearn.org/home.html.

A number of common problems faced by young people in business can be identified.[43] One fundamental problem is the inability to secure start-up funds leading to under capitalisation (starting a business without enough funds).[44] Other problems commonly encountered are managing cash flow, especially dealing with bad debts and late payments; and coping with stress, especially without the support of friends who understand the demands of self-employment. Once under way, problems can arise with managing the expansion of the business such as working out how to employ the right staff and managing other people for the first time.

Governments, the private sector, non-government agencies and local communities can, each in their own way, promote efforts to support young people starting up enterprises based on ICT. However, enterprise support programs run by governments or international agencies have often had high failure rates. Particular problems have been insufficient resources and staff and overly rigid and inappropriate procedures.[45]

A recent paper for the International Labour Office suggests that enterprise-based employment programs for young people need to have several key features.[46] First, the external assistance provided by governments or NGOs needs to have a commercial orientation. This means acknowledging that the venture being assisted has the productive capacity to create profit, re-pay loans and expand to employ others. Second, the assistance needs to help young people manage risk more effectively. Third, the assistance needs to be tailored to meet the needs of individuals in terms of their skills, work experience, aspirations and capacity to obtain resources. Finally, the enterprise support program needs to be cost-effective and not rely on a single source of external support, be it technical, organisational or financial.[47]

[42] Kenyon, P. and White, S. (2001): *Enterprise-based youth employment policies, strategies and programmes*, International Labour Office, Geneva, p. 7.
[43] Ibid, pp. 7-9.
[44] OECD (2001): *Putting the Young in Business: Policy Challenges for Entrepreneurship*, p. 40.
[45] Ibid, p. 8.
[46] Kenyon, P. and White, S. (2001), p. 9.
[47] Ibid.

Micro credit and young people

Micro credit refers to the provision of small loans to the poor without requiring security for the loan (i.e., collateral free). It is potentially an important vehicle for young people to obtain the funds needed to start in self-employment. The micro credit has achieved considerable success through tapping the social networks of borrowers to encourage high repayment of loans (see Box 8). The poor are able, through the use of mentors and the acceptance of mutual responsibility, to obtain credit based on their accumulated social capital.[48]

Micro credit is based on the assumption that the poor are the best judges of their own situation and know best how to use credit when it is available, especially when they are being supervised and encouraged by their peers. The success of micro credit programs for the very poor shows that, when properly administered, they reinforce entrepreneurial behaviour and self-sufficiency rather than promoting dependency.[49] However, micro credit appears to have been much less successful in involving young people (see Box 9 for some reasons why and how it these were addressed).[50]

Box 8: The Alexandria Business Association

The Alexandria Business Association (ABA), established in 1983, turned its attention in 1990 to offering, with USAID support, technical and financial assistance small and micro enterprises. After only two years of operation, the ABA/SME credit service had generated enough income to cover all operating costs. In 1994, the ABA's operating cost ratio ranked among the best in the world. …In June 1998, the UNDP signed a contract with ABA to act as the International Technical Service Provider for its MicroStart Program in Bahrain and in 1999 a similar contract was signed for Yemen.

Since ABA first began its SME Project, it has achieved a range of outreach comparable to those of the most successful micro finance ventures in the world: up to December 2000, the project has served over 60,000 with about 25,000 active clients. It has extended over 170,000 loans amounting to almost US$ 125 million.

While manufacturing and processing were initially the primary targets of the SME Project, ABA has diversified its portfolio so that it includes loans to clients involved in trade and to those specializing in the service industry. Furthermore, ABA has been very effective in reaching lower income entrepreneurs. Approximately, 72 per cent of its loans go to micro enterprises.

Source: http://www.aba-sme.com/history.html

[48] Larance, L.Y. (1998): 'Building Social Capital from the Center: A Village-Level Investigation of Bangladesh's Grameen Bank,' Washington University, St. Louis, Missouri.
van Bastelaer, T. (2000): 'Imperfect information, social capital and the poor's access to credit,' Center For Institutional Reform And The Informal Sector, University of Maryland, College Park, Working Paper No. 234 (http://www.iris.umd.edu/publications/detail.asp?ID=wp&number=234).

[49] Grameen Foundation USA: 'Eight reasons why micro credit is a viable and powerful anti poverty tool,' (http://www.gfusa.org/microcredit.html#info).

50 Curtain, R. (2000): 'Background Paper: Identifying the Basis for a Youth Employment Strategy Aimed at Transition and Developing Economies'(http://www.un.org/esa/socdev/youthemployment/).

Box 9: Micro credit for the urban jobless in South Africa

…make it easier for would-be entrepreneurs to borrow start-up capital. Ordinary banks will not lend to them, so some kind of micro-credit scheme is needed. The usual model is Bangladesh's Grameen Bank, which makes tiny loans to village women and relies on peer pressure to ensure repayment: other people in the village cannot have a loan until the first borrower repays hers.

This would not work for the urban jobless in South Africa: community ties are too weak. But the Start-Up Fund, a charity based in Cape Town, has devised a method for lending money to the unemployed without losing it. Would-be borrowers must pass through a five-day basic business course known as the "township MBA", and put up 100 rand of their own money as a surety. Then they can borrow 300 Rand. If they repay this on time, they can raise ever-larger loans.

Because borrowers' business plans are not scrutinised, the Start-Up Fund's overheads are low: two staff with computers deal with 15,000 customers. Combined with fairly high interest rates (3.25 per cent per month), the surety fund covers what few bad debts there are, and pays for the township MBAs as well.

Most borrowers are women, who are more likely than men to spend their earnings on their children rather than on beer. Four-fifths of those who pass through the scheme are soon either employed or self-employed. Now that the organisation makes a profit, its director, Tony Davenport, has started to raise capital from investors instead of donors.

Source: The Economist, 1998, 'Out of work, out of hope', Oct 29th 1998

2.2 Promoting public-private partnerships to generate ICT-related employment

The second best practice principle highlights the use of public-private partnerships to create ICT-related employment opportunities for young people. Public-private partnerships refer to collaborative arrangements between governments and private enterprises or the NGO sector to generate employment or to deliver better services. One use of public-private partnerships by governments is to leverage additional investment to build public infrastructure or to deliver public services using private providers. Public-private partnerships can help leverage additional funding to build roads, expand public transport or set up a communications infrastructure. Public-private partnerships can also be used to fund and operate education and health services.[51]

The UN ICT Task Force, in its report to the Secretary General in May 2001, has emphasised the value of partnerships between governments and the private sector to 'enable real, tangible and sustainable transfer of knowledge and technology, especially ICT, to developing countries.'[52]

> *The private sector has at its disposal the financial strength and technological wherewithal which, if utilised appropriately within the context of a genuine partnership, can make a positive contribution to the development process.*[53]

Public-private partnerships enable governments to increase public infrastructure or public services by using fewer of their own resources while maintaining or even improving the quality of the standards offered.[54] Public-private partnerships are particularly suited to the generation of

[51] UK Treasury (2000): *Public Private Partnerships: The Government's Approach.* (http://www.hm-treasury.gov.uk/mediastore/otherfiles/80.pdf).
[52] UN ICT Task Force (2001): Report of the Secretary-General: *The role of the United Nations in promoting development, …especially information and communication technologies, …through partnerships with relevant stakeholders, including the private sector,* E/2001/59, 2 May, para. 70, p. 33.
[53] Ibid, p. 33.
[54] The Canadian Council for Public-Private Partnerships, see http://www.pppcouncil.ca/whoweare.htm

ICT-related employment because Governments need to attract not only investment funds but also the knowledge and expertise required to operate complex ICT facilities.

Young people are well placed to benefit from such partnerships in terms of improving their employment prospects, particularly where they involve the transfer of knowledge and expertise. Youth development projects were one of the areas focused on by the Business Partners for Development Program, to identify and share what works in building successful partnerships for youth to mobilise significant new resources in order to strengthen and scale up best practices in youth development. The final report of the Program offers recommendations on how to get the most from these partnerships for business, non-governmental organisations, developing country governments and Multilateral and Bilateral Organisations (see Box 10 below).

Box 10: Business Partners for Development Program Releases Report

From 1998 through 2001 the International Youth Foundation (IYF) was a key member of the Business Partners for Development Program (BPD), a three-year program initiated in 1998 by the World Bank, the UK Department for International Development, and 118 other international organizations, corporations and NGOs to study, support, and promote examples of tri-sector partnership. Recently the BPD Program wrapped up its three years of activities with a publication highlighting BPD's results, findings, and lessons learned (available at http://www.bpdweb.org//products.htm).

The purpose of the publication is to demonstrate the potential benefits of tri-sector partnerships for both communities and businesses, and provide organizations with limited experience of partnering with the lessons and tools on how to develop successful partnerships amongst government business and civil society.

Source: http://www.iyfnet.org/utility.cfm/85/general/183 , 19 April, 2002

The collaboration through a partnership between a company, government, and civil society is significant because it pools resources and risk and builds on core complementary competencies. The result is 'added value' to what each party could achieve alone. The report notes that tri-sector partnerships (business, non-governmental organisations and governments) are usually formed through a four-stage process: partnership exploration, partnership building, partnership maintenance, and partnership completion. Often the partnership will be defined by a set of agreements designed to deliver on shared expectations and a joint action program. These agreements, or charters, may vary in their nature from voluntary arrangements to formal contracts between equal parties.[55]

The report also notes that the need to make the link between the main 'competencies' of each partner and their 'core' organisational objectives. Partnerships work well where it is clear what competences in the form of resources, roles, responsibilities each party brings to the relationship, and how these add value to achieving each partner's organisational objectives, for example, in relation to competitiveness, poverty reduction, or governance.[56]

However, public private partnerships will not work in all circumstances. It is important to note the preconditions that need to be present to improve the chances of success. The report highlights the following seven preconditions (see Box 11)

Box 11: Preconditions for tri sector partnerships

• Activities that, if delivered through tri-sector partnerships, will produce added value for all partners.
• Activities that require sets of skills or resources from across business, government, and civil society.

[55] *Putting Partnering to Work: Business Partners for Development 1998–2001: Tri-sector Partnership Results and Recommendations*, p7. http://www.bpdweb.org//products.htm
[56] *Putting Partnering to Work, p8.*

• Evidence that alternative mechanisms would be less effective than working through a tri-sector partnership model.
• Partners that understand that some modification and compromise is necessary to create a sustain-able partnership.
• Potential partners with the capacity to negotiate.
• At least one internal champion to drive the partnership- building process forward within each of the organisations.
• An existing operational or planning process into which partnership building can integrate.

Source: *Putting Partnering to Work: Business Partners for Development 1998–2001: Tri-sector Partnership Results and Recommendations, p18.*

A good example of a tri sector partnership in operation in South Africa is the setting up of 'Digital Villages' (see Box 9). These are computer resource centres which are managed by members of the community who have been trained in the necessary IT and management skills. They are funded and supported by a number of technology partners, including Microsoft and HP, in cooperation with local governments and communities. Some 20 Digital Villages have been opened in South to the end of 2001 (see the box below).

Box 12: 'Digital Village' in Alexandra, Johannesburg

Executive mayor of Johannesburg City Metro, Councillor Amos Masondo, opened a Digital Village in Alexandra on Wednesday, 21 November 2001, as part of the Alexandra Renewal Programme. Funded by Microsoft South Africa, Hewlett-Packard South Africa and the Local Government, the Digital Village is situated in the Alexandra Community Library and will provide the surrounding community, schools, students and entrepreneurs with the opportunity to develop their computer skills and take advantage of the power of technology…

Situated in an area that forms the centre of community activities, the digital village will provide small business-owners and entrepreneurs with access to technology and essential business services such as e-mail and printing. Internet access will allow community members to embrace current and future public services on offer as part of South Africa's e-government initiatives…

In partnership, Microsoft and HP contributed towards setting-up the technology infrastructure of the centre including the networking infrastructure linking the 20 HP workstations, two HP NetServers and two HP printers on a Local-Area-Network and enabling Internet connectivity. All hardware has been fully loaded with the latest Microsoft operating system and applications software.

Further to setting-up the technology infrastructure, Microsoft South Africa played a role in establishing a management committee representative of the community as well as facilitating the necessary training of the digital village coordinator in technology and business skills.

Source: http://www.microsoft.com/southafrica/press/press-501.htm, 22 November, 2001.

Need for Public-private partnerships to create ICT related employment opportunities

As noted above, young people have the opportunity to gain employment through the growth in remote processing facilities that are located outside the high-income countries. These provide a range of services from help lines, technical support, and handling reservations and sales to data conversion including voice to data transcription. Other remote processing includes payroll accounting to internal auditing and credit appraisals. High-end remote processing includes creating digitised maps of townships, utilities, roads, and other facilities. It is claimed that back

office functions likely to grow in importance are settling insurance claims and summarising legal documents, such as witness depositions.[57]

However, 'teletrade', as remote processing between countries has been called, is only possible when a country has the necessary telecommunication infrastructure. These links require installing and maintaining a sophisticated network both within a remote processing facility and between countries. This equipment is not only expensive, it also requires supporting maintenance skills and reliable infrastructure, conditions which many developing countries require external assistance in the form of public-private partnerships to provide.[58]

Some small states such as Jamaica in the West Indies, nevertheless, have been successful in setting up 'Digiports' (Free-Trade Zones for digital work) to create jobs through attracting information processing work. Incentives provided by government to foreign-owned data-entry firms in Jamaica's Montego Bay Free Trade Zone have included: low cost premises, tax benefits, and the right to repatriate all profits and dividends to home countries.[59] The type of ICT-related remote processing work that small island countries have attracted is diverse. It ranges from relatively low-skilled operations, such as data processing to more skilled tasks, such as assessing and authorising insurance claims.[60]

Call centres

A related source of ICT-generated employment for young people is through Call centres. These offer telephone-based services from a central office to customers in a variety of business sectors. Call centres handle telephone calls, fax, e-mail and other types of customer contact - in live and automated formats. They have expanded rapidly in Europe and are important sources of work in Hong Kong (China), Taiwan (Province of China), South Korea, Malaysia and the Philippines.[61] An American insurance firm recently set up an office in Accra, where Ghanaians process claims and send them back to Kentucky via satellite.[62] Many young people in developing countries have found work in call centres.

ICT skills provision and public-private partnerships

There are a number of public-private partnership arrangements in developing countries related to ICT skills transfer involving governments, local educational institutions and international companies. Cisco Networking Academies, for example, operate in 24 Asia-Pacific countries with 28,823 students enrolled (see Box 13 for one example of how a Cisco Networking Academy assists the most vulnerable youth).[63]

Box 13: The Partnership for Youth Development

There is a tremendous need to provide opportunities to the large number of disadvantaged and out-of-school youth in the Philippines. The Government of the Philippines entered into a partnership with the Children and Youth Foundation of the Philippines, Ayala Corporation, IYF, Cisco Systems, Inc., the Cisco Learning Institute, and the World Bank to provide competency-building opportunities to youth who have not finished high school. They are assisted in going back to formal school for their basic education. Those who cannot attend regular classes in basic education or have no access to schools may undertake an alternative learning program that is home-based.

[57] Mitter, S. and Millar, J. (2001): 'The impact of ICT on the spatial division of labour in the service sector,' Background Paper, in *World Employment Report 2001*.
[58] Ibid, Section 4: 'from teleworking to tele-networking'
[59] Ibid.
[60] Ibid.
[61] ILO (2001): *World Employment Report 2001*, p. 37.
[62] The Economist 2002, 'Ghana as economic model' 25 April.
[63] The countries listed as having academies are: Australia, Bangladesh, Bhutan, Cambodia, China, Fiji, Hong Kong SAR, India, Indonesia, Malaysia, Mongolia, Nepal, New Zealand, Papua New Guinea, Philippines, Singapore, Republic of Korea, Sri Lanka, Taiwan ,Thailand, and Viet Nam (http://www.cisco.com/asiapac/academy/).

Those young people fifteen years of age or older may undertake integrated technical education courses that are tied to industries for curriculum development, apprenticeship, and eventual employment. One example of such a program is the Cisco Networking Academy Program, which consists of 280 hours of curriculum designed to teach students to design, build, and maintain computer networks.

A key component of this initiative entails a 'bridging programme' to provide basic computer literacy, maths, and English skills required for students who have dropped out of high school but who, through the POSCYD, are planning to enrol in the Cisco Networking Academy Program. Together with skills training, the students are also provided with the alternative learning system in basic education to help them achieve high school equivalency and/or pre-pare them for higher levels of technical courses.

Out-of-school youth are usually faced with special challenges in interpersonal skills, self-esteem, mathematics, and science, which puts them in the category of special learners. To address the situation, they are provided with life skills training and mentoring/tutoring and counselling services.

To develop leadership, they are also encouraged to participate in classroom and school activities and/or act as mentors/tutors to those who are having academic difficulties. Some of them are involved in outreach or community programmes. About 2,300 have graduated from basic (formal or alternative) or integrated technical schools. An estimated 1,750 are still enrolled.

The total enrolment exceeds the project's original target of 3,000 beneficiaries by more than 50 percent. Almost 17 percent, or about 800, of those who were assisted discontinued their education, mostly as a result of extreme poverty. Few of them failed to meet school requirements. An evaluation done in September 2001 showed that the employment rate of program graduates of integrated technical education is 70 percent, which is high relative to the national average of 44 percent.

Source: *Putting Partnering to Work: Business Partners for Development 1998–2001 | Tri-sector Partnership Results and Recommendations*, p12.

Public-private partnerships in other developing countries are also increasing the opportunity for young people to compete in the global ICT labour market. Sri Lanka's University of Colombo, for example, has created an 'External Degree Program' resulting in a Bachelor of Information Technology. While university staff members conduct the examinations, the program is linked with research facilities and private sector training institutions to design jointly the curriculum and provide the actual instruction. The program aims to produce 3,000 graduates in the next three years, which is 100 times the capacity of that the university alone could have produced.[64]

2.3 The potential of ICT to assist the vulnerable

The third best practice principle concerns the use of ICT-based employment opportunities to assist the most vulnerable among young people. One way this can be done is to locate ICT training facilities in areas where the most vulnerable live (see Box 14).

Box 14: ICT and employment opportunities in South Africa

Just outside the economic heart of South Africa there's no running water, no electricity and no formal housing. The people live cheek by jowl in tiny shacks that are erected wherever there's space. Young and old walk the streets aimlessly, seemingly resigned to their fate. They don't have jobs and without jobs there's little chance for a better existence. Some have matriculated and cannot afford tertiary education, others have little or no formal education. But all lack the skills and

[64] McConnell International (2001): *Ready? Net. Go! Partnerships Leading the Global Economy*, May, p. 18 (http://www.mcconnellinternational.com/ereadiness/ereadinessreport2.htm).

experience to find formal sector employment.

The community is marginalised and poverty stricken with little or no basic service provision. It would likely remain so, were it not for an innovative initiative driven by the non-profit Organisation for Rehabilitation and Training (ORT). Recognising the extreme need of the people of Dikhatole, ORT has set about equipping members of the community with basic computer, internet and business skills.

ORT approached the South African branches of Hewlett-Packard (HP), Microsoft and Macsteel with the idea of creating a learning centre, a place where the digital divide could be bridged and people could be equipped to compete in a fast changing world.
The result was the birth in April this year of the Dikhatole Digital Village, the largest facility of its kind in the country with more than 90 internet enabled workstations.

HP donated the computers and hardware needed to network the computers and connect to the internet, while Microsoft sponsored the software. The building which houses the training centre was loaned to the project by Macsteel, who renovated it and provide on-going infrastructure support.

The project is aimed at addressing unemployment and low incomes in the area. It will also address a lack of resources at local government level, by training councillors and council employees in basic information and communication technology (ICT) skills. Teachers in the area will also be trained to deliver ICT lessons to their primary and secondary school pupils. Computers will be donated to schools in the area for this purpose.

It is envisaged that the project will last three years, and by then the community is expected to be trained and experienced enough to make the centre self-sufficient. Already all the trainers employed there are from the Dikhatole community. … a train the trainers program had allowed ORT to identify capable people to staff and manage the centre….

According to the Centre's manager: 'Employability is the guiding principle behind the course. During the course we are identifying the students who can be technical, and learn to do website design or programming, or have an aptitude for graphic design, so we can advance them at a later stage.'

There are plans to establish an internet cafe and desktop publishing centre in the nearby town of Germiston … to allow the trainees to utilise their skills and gain work experience, designing business cards, letterheads or providing technical support or secretarial services to the local businesses. They would work there on rotation…

Source: http://allafrica.com/stories/200206050519.html, 5 June 2002

Another example of how the Internet can be used help the most vulnerable is through the delivery of health care training to remote locations.[65] A leading non-profit organisation in the field of reproductive health, has developed for delivery via the Internet a course in infection prevention designed for health staff who work in developing countries. Topics include disease transmission, aseptic technique, use and disposal of needles and other sharp instruments, and waste disposal.[66] However, access to this course and others like it requires people with the technical skills to show health care workers how to use the Internet.

Other potential ICT applications in health care include the use of relatively simple Internet-based data management systems to exchange information such as patient records between health care professionals. Tele-medicine applications now available also make it possible to deliver

[65] ILO (2001): *World Employment Report 2001*, p. 59.
[66] Ibid, p.60.

health care to people in isolated locations.[67] The use of low-cost communication based on the Internet in the health system will create the need for young people with ICT skills in rural locations. The skills required are to be able to establish a local area network or at least, once it is set up, to be able to maintain the network and to provide 'help desk' assistance for health staff to enable them to use the system easily.

Other uses of ICT- related skills to assist the most vulnerable

The Internet offer the opportunity to tap world markets, even for the urban poor in Kenya, as the following example illustrates (Box 15).

Box 15: Hard Work, Quality Sandals, and the Internet

…Throughout Kenya, Korogocho is known as a rough place. Few there have jobs. Violence is rampant. Quality health care is non-existent. Shelter is dilapidated and very temporary. It is a place where most Kenyans fear to walk even during the daytime… In 1995, a Kenyan and an American started the Wikyo Akala Project with approximately $US2000. For six years following its founding, the Project struggled to survive, often with only five part time employees. The Project's source of funding was sales, not donations, and the Project simply did not have access to its targeted markets. ... Finding avenues to market the sandals to customers ten kilometres from Korogocho, in downtown Nairobi, was virtually impossible. Doing so outside of Kenya was an unimaginable pipe dream. It was difficult just to make a phone call from one side of Nairobi to another. Communicating to customers abroad would take weeks or months. Finding such customers was impossible.

...In February 2001, the online debut of www.Ecosandals.com changed everything. Hours after the site's launch, it had been viewed on six continents, and the orders in the first week nearly doubled all orders the Project had received in the prior six months. Within months the Project grew six-fold. The Project premiered globally with a ten minute CNN profile and continues to receive coverage in both the Kenyan and American media. The Internet and a creative community business transformed a struggling community-owned project into a fast-growing and self-sustaining community inspiration. In its first year online, without spending even a single shilling advertising - simply through word of mouth - the Project's revenues increased an astounding 25 times.

Today, every one of the 27 sandal-makers understands how a couple thousand dollars, a few creative minds, and information and communication technologies are transforming one of the materially poorest communities on earth.... For the 27 sandal-makers... Sandal-makers are entitled to a 30 per cent share of all Project profits. …

At its most basic level, the Project seeks to provide quality employment to Korogocho residents for a liveable wage. The Project is not about making or utilizing new technologies. It is about doing all those things as means of building personal dignity. ICTs are merely the vehicle for achieving those goals.

Source: 'Sole Comfort Dot-Com: Bridging the Global Income Gap Through Hard Work, Quality Sandals, and ICTs', 14 April, 2002, http://www.iicd.org/base/story_read_y?id=4898

Marketing pro-poor tourism

Pro-poor tourism aims to generate net benefits for the poor through expanded opportunities for economic gain, other livelihood benefits, or engagement in decision-making.[68] Pro-poor tourism strategies can 'tilt' the tourism sector at the margin to expand economic opportunities for the poor by increasing demand for their goods and services and enhancing the asset base of

[67] Ibid.
[68] See http://www.propoortourism.org.uk/what_is_ppt.html.

poor people.[69] Pro-poor tourism has the potential to play a significant role in increasing livelihood security of vulnerable groups, including young people (see Box 16). Tourism directed to poor areas can generate employment opportunities, especially for young people with education as well as generate earnings for the wider community.

Box 16: Pro-poor tourism: bringing tourists to the remote Humla District of north-west Nepal.

The Dutch development agency SNV works with local communities… in a very poor and remote area of Nepal. The aim of the project is to produce and supply locally the goods and services required by the tourism industry rather than from Kathmandu

SNV's strategy revolves around developing tourism initiatives that benefit poor and disempowered groups as opposed to the Kathmandu-based trekking agencies. The focus of the initiative is… at the local level - on specific enterprises and communities along a trekking trail…. The emphasis of the Pro-Poor Tourism strategy is on social mobilisation through the development of community-based organisations; business planning and training designed to enable the poor to develop micro-enterprises and to take up employment opportunities.

Source: http://www.propoortourism.org.uk/nepal_sum.html.

However, the marketing of the pro-poor tourist facilities has to be a key feature of any strategy. The aim should be to work out ways to establish a secure and appropriate market rather than simply attracting more tourists.[70] This can be done in a variety of ways such as brochures, trade fairs, and advertising. The Internet can also play a pre-eminent role in a pro-poor tourism marketing strategy by providing information about remote tourist locations, including photos of key features as well as providing a ready means of low cost communication via e-mail.

The Namibia Community-Based Tourism Association in south-west Africa assists local communities to set up tourism enterprises in the previously neglected rural areas of Namibia. The Association has set up a web site with detailed information including a map about each of the seven regions in rural Namibia and the community-based tourism facilities in each region (see Box 17).[71] Young people are well placed to acquire the skills to set up or at least maintain a web site as well as respond to e-mail inquiries for remote tourist facilities.

Box 17: Pro poor tourism: From the Namibia Community-Based Tourism Association web site

Why visit Nyae Nyae Conservancy? The Ju/'hoansi have organised themselves to form the first communal area conservancy in Namibia. Meet the people and experience their traditions and culture in this remote and beautiful corner of Namibia.

What can you experience? Go on a traditional hunt with Ju/hoansi hunters. Experience the tracking of elephants or simply view the wildlife that frequent the seasonal pans Witness the gathering & cooking of veld (bush) food! Enjoy traditional dance & music. Enjoy birdwatching!

What facilities are available? Campsites at Djokhoe & Makuri with very basic camping facilities, fireplaces and toilet Please bring your own water Prices: On request at the Conservancy Office in Tsumkwe. Nearby attractions include: Kaudom National Park (1-2 hrs 4x4 required)

[69] Ashley, C., Roe, D. and Goodwin, H. (2001): *Pro-Poor Tourism Strategies: Making Tourism Work For The Poor a review of experience*. Pro-Poor Tourism Report No. 1, April 2001, p. ix.
[70] Ibid, p. 31.
[71] NACOBTA currently has approximately 45 members including campsites, rest camps, traditional villages, craft centres, open museums and tour guide associations. Of these, about 25 are currently (August 2001) open for business whilst the others are in development.

Your support of these enterprises also makes a crucial contribution to rural development in Namibia. It allows communities to take part in the tourism sector and to develop businesses, which will provide employment opportunities and generate income in the region where they live. This in turn provides communities with another livelihood strategy and gives them more control and choice over their own development. Thank you for your support.

Source: NACOBTA (Namibia Community Based Tourism Association) web site (http://www.nacobta.com.na/en/About.htm).

2.4 Bridging the gap between the digital economy and the informal sector

The fourth best practice principle concerns the use of ICT to help bridge the gap between young people's opportunities for self-employment in the informal economy and the high growth sectors of the world economy. Reference has already been made above to how informal sector workers can gain easy access to the Internet through telecentres to obtain information on markets or administrative procedures, and to publicise their services to a wider clientele. For example, the Foundation of Occupational Development in India, which operates eleven telecentres, has also established a website called *IndiaShop* to provide a market outlet for indigenous crafts people. As a result, an isolated community is able to fetch much higher prices from international customers than from retailers in nearby cities.[72]

Reference has also been made to how communities in remote locations can make use of self-contained, solar-powered ICT centres to sell, among other things, traditional cultural products such as art, music, photography, legends and storytelling via the Internet. This is being done on a pilot basis in remote communities in India, Jamaica, Ghana, and the West Bank.

Another example of the use of ICT to help bridge the gap between employment for young people in the informal sector and the mainstream economy is India's Self Employed Women's Association (SEWA). Its 220,000members are women and young women who earn a living through their own labour or through small businesses. [73]

SEWA has been one of the first organisations in India to realise the potential for harnessing ICT to help women in the informal sector. It has sought to develop the organisation's capacity to use computers by conducting awareness programs and imparting basic computer skills to its team leaders, 'barefoot' managers and members of its various member associations. Many of SEWA's member organisations have launched their own websites to sell their products in the global virtual market place.[74] Since the entire membership of SEWA consists of poor self-employed women, giving its members access to software in the 'language of daily use' is of great importance. Hence, efforts are being made to develop software to enable grass-roots workers and members to make the best use of the tools provided by ICT.

Recently, SEWA has started using telecommunications as a tool for capacity building among the rural population. SEWA uses a combination of landline and satellite communication to conduct educational programs on community development by distance learning. The community development themes covered in the education programs delivered include: organising; leadership building; forestry; water conservation; health education; child development, the Panchayati Raj System and financial services.[75]

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[72] Hudson, H.E. (2001): 'The potential of ICTs for development: Opportunities and obstacles,' Background paper, in *World Employment Report 2001*, section 7 - The contribution of ICTs to development.
[73] Nanavaty Reema, General Secretary, SEWA personal communication, bdmsa@ad1.vsnl.net.in.
[74] ILO (2001): *World Employment Report 2001*, p. 60.
[75] Ibid.

An Internet gateway to promote sustainable livelihoods

The potential for ICT to bridge the gap between young people's self employment opportunities in local informal sector markets and the wider domestic and international economy is amply demonstrated by India's TARAhaat.com. TARAhaat or *Star Marketplace* is an Internet gateway that connects the village user to information about social services, health, entertainment, and to markets, through a network of franchised cyber centres, customised in the language of their choice. The website attracts between 5000 and 25,000 contacts per month.

The project illustrates a number of best practice features, which won it the 2001 Stockholm International Challenge prize as best practice in the category of a Global Village.[76] The first feature worth highlighting is that it is targeted at the poor by seeking to create sustainable livelihoods for people located in areas with limited economic opportunities and harsh living conditions. Second, it has been designed using extensive market research and socio-economic surveys, including a house-to-house survey of selected villages in the region. Third, its format aims to cater for the needs of people with wide variations in literacy, language, financial liquidity, and levels of understanding.

Fourth, the project is supported by partnerships with enterprises in the public and private sector including the Indira Gandhi National Open University. Fifth, the project has support from youth organisations through the Association of National Youth Cooperatives.

Sixth, the project is based on features that go beyond simply using the Internet to communicate with its target audience. TARAhaat covers all three components for rural connectivity: content, access and fulfilment. Content in relation to law, governance, health and livelihoods is provided by the TARAhaat.com mother portal. Access is provided through a network of franchised local enterprises. Delivery of information, goods and services is provided by local courier services or franchised TARAvans. The revenue streams of TARAhaat provide for profit generation at each step of the supply chain, serving to further cement its networks.

The project, although still in its pilot stage, is said to have increased the economic opportunities for the physically disabled and the franchisees, as well as to have improved access to education for rural girls. Other benefits include the generation of alternative sources of income for young people through desktop publishing.[77]

2.5 Putting young people in charge

The fifth best practice principle in the use of ICT to generate employment for young people relates to the importance of their participation in the design and implementation of ICT-based initiatives. The value of participation can be justified on a number of grounds.[78] However, in pragmatic terms, evidence exists to show that participation is a crucial ingredient in achieving program effectiveness.[79]

> *It is not only that such participation brings to the project relevant information that outside development agencies (or even governments) are not likely to have. Participation also brings with it commitment, and commitment brings with it greater effort—the kind of effort that is required to make the project successful.*[80]

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[76] See http://www.challenge.stockholm.se/new_tavlande_index.html.
[77] *Ibid.*
[78] Narayan, D., Chambers, R., Kaul Shah, M., and Petesch,P. (2000): *Voices of the Poor: Crying Out for Change*, Published for the World Bank, Oxford University Press, New York.
[79] Isham, J, Kaufmann, D. and Pritchett, L. (1997): 'Civil Liberties, Democracy, and the Performance of Government Projects,' World Bank Economic Review, Vol 11, No 2, pp. 219-42.
[80] Stiglitz, J: (1999): 'Participation and development: perspectives from the comprehensive development paradigm,' *The World Bank*, February 27, Seoul, Korea, pp. 10-11.

The importance of the principle of youth participation is stressed in the Dakar Youth Empowerment Strategy, the product of the deliberations of 350 representatives of youth organisations at the UN's World Youth Forum in August 2001.[81] The Strategy urges governments and international agencies to support initiatives that 'empower young people to have greater control over their individual and collective destinies, and their ability to effectively contribute to the advancement of the global community.'[82]

> *Technical, human and financial support must be focused on assisting marginalized and vulnerable youth to organize themselves in order to address their own needs and interests, and make their particular contribution to social progress… Young people and youth NGOs are the best agents for delivering change for other young people…*[83]

As noted above, a limitation of many government support programs for youth enterprises is the failure to recognise that the initiative that comes from young men and women, based on their assessment of its viability and motivation to succeed rather than as a product of the program itself.[84]

Youth Access Program

A project in Australia offers a good illustration of youth input at the design and implementation stages. Located in regional Australia, the project is based on the principles of self-help, self-financing and self-mentoring. The project developed because of a failed grant application to repair 'retired' computers. When the computers became available, the young people themselves decided to start the project without external funding.[85]

The thrust of the project is for young people themselves, using recycled computers and free software, to teach each other skills such as networking computers, how to repair computers, and how to design start-up IT projects to provide themselves and others with employment. Refurbished computers are given to other members of the group without a computer. Other recycled computers are made available to regional schools, youth groups, and handicapped and indigenous youth. Network members are expected to actively seek out recycled hardware, refurbish it and make it available to others.[86]

The self initiated actions of a Nepalese teacher shows how the Internet can benefit a remote village, even though he has to have to walk down for a full day to the nearest city where an Internet service is available to communicate with people from around the world (see Box 18).

Box 18: Village in the clouds embraces computers

Mahabir Pun is a Nepalese educational pioneer who is trying to break the cycle of poverty in his mountain village of Nangi by taking it into the computer age. Having founded Himanchal High School, he sees the Internet as the way to improve the children's education.

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[81] The 2001 Dakar Youth Empowerment Strategy builds on earlier World Youth Forum Declarations, follow-up work by the UN and the resultant national youth policy and action plans developed by governments. See UN (n.d): *Youth Participation Manual* & *Youth Policy Formulation Manual.* Human Resources Development Section, Social Development Division, United Nations & Economic and Social Commission for Asia & the Pacific.

[82] World Youth Forum (2000): *Dakar Youth Empowerment Strategy*, para. 16 (http://www.un.org/esa/socdev/unyin/forum/dakar.doc).

[83] *Ibid*, para. 43 & 44.

[84] White, S and Kenyon, P. (2001): *Enterprise-Based Youth Employment Policies, Strategies and Programmes.* International Labour Office: Geneva, p. 14.

[85] See http://www.challenge.stockholm.se/new_tavlande_index.html .

[86] *Ibid*

The Internet has been a great help for Nangi, even though we do not have a connection here. One of my professors had helped me to put a simple website about my village and school on the web in 1996. That website has connected my village to the outside world, and I think my village is the first one in Nepal to be on the Internet.

With the simple website we have now, people from around the world have been able to locate my village and have come to volunteer. We regularly get volunteers from America, Britain, Australia, Singapore, Switzerland and Malaysia.

Those who have not been able to visit have also helped in different ways, such as sending books, teaching materials, and money as a donation. Moreover, students from Australia and America have been writing letters to our pupils as penpals through ordinary mail.

… I have installed two small hydro-generators in the stream near our village for power for the school. We got some computers from Australia, Singapore and Malaysia as donation. I also collected some used computer parts in the US and took them to the village and assembled the parts in wooden boxes, building 14 computers.

Now we have 15 computers in our school, which has about 300 students from six neighbouring villages. As far as I know this is the only community school in the entire country that provides computer classes for high school students.

I have seen that even a small village like mine can benefit a lot from the Internet. We can use it to generate money for the village, to provide quality education for our children, to provide information about our culture to children all over the world, and to invite volunteers to come to our village.

Source: BBC News, 22 October, 2001
http://news.bbc.co.uk/hi/english/sci/tech/newsid_1606000/1606580.stm

The need for mentors

Leadership by young people may, however, require support. Malaysia's National Information Technology Council has set up the knowledge Asian Youth Network (kAYNet) to assist young people make better use of the Internet. One form of assistance offered is E-Mentoring (see Box 19). Other forms of mentoring can be set up through what have been called 'horizontal exchanges'. Shackdwellers' International in Africa and Slumdwellers' International in Asia have set up opportunities for the urban poor to visit associations in other developing countries to share experiences, examine their problems, set priorities and explore solutions, then to evaluate these solutions, refine them and spread them around.[87]

[87] http://www.sdinet.org/

Box 19: E-Mentoring

You want a mentor, a person you admire, trust and look up to? A person with experience to guide you? It can be in hobby, games, career or profession. It can also be a mentor for a child development. Mentor is useful for you and so chose one whom you believe can help you in your personal life, career or profession. Press E-counseling if you want to talk to someone for guidance.

There are associations and clubs that we can refer to:

1. Lion Club of CyberCare Kuala Lumpur

http://www.lion-cybercare.org/

2. Persatuan Kebajikan Kanda-Dinda (PKKD)

http://www.lion-cybercare.org/eMentor-pkkd/mentoringprog/mentorPrg1_eprog .htm

Source: http://www.kaynet.nitc.org.my/page.cfm?name=Mentoring

Scope exists for young people from the high-income countries to form mentoring relationships with young people in low and middle-income countries. This is done now through extended stays by volunteers or by providing opportunities for young people from low and middle income countries to gain skills through training in high income countries, as is offered by World Corps (see Box 20).

Box 20: Assistance for young people to set up community-based businesses in rural areas

World Corps, an international non-profit organization based in Seattle that provides training to promising young business and community leaders worldwide. World Corps seeks to create jobs, sustainable social business ventures, and programs for social change that are easily replicable. Their Web site is http://www.worldcorps.org

World Corps trains young men and women aged 21-28 to establish community-based businesses in rural areas of the developing world. These young people train together in multi-national teams, and return to their home communities (primarily in the developing world) to establish small businesses in areas such as Internet and renewable energy.

World Corps is launching its first Pilot Program in India in the southern state of Andhra Pradesh. Starting in January, 25 young people (15 from India and 10 from five other countries) will train together for six months while establishing new community Internet centres in India. The new Internet centres will bring the resources of the Internet to poorer neighbourhoods outside large cities. Training topics in other countries will focus on other sustainable, environmentally friendly business enterprises such as renewable energy.

World Corps intends to launch pilot programs in Kenya, Mexico, and the Philippines in late 2002 and early 2003.

Source: http://www.worldcorps.org/

However, other forms of mentoring could also be fostered, involving short-term visits (both ways) and ongoing contact through e-mail. A number of such partnership arrangements have developed since 2000 between Australia and East Timor involving local government and service clubs such as Rotary. There are a range of resources on the Internet in relation to online mentoring (see Box 21).

Box 21: Online Volunteering Sites

Virtual Volunteering Project Extensive (http://www.serviceleader.org/vv/orgs/mentor.html), comprehensive resources to help agencies involve volunteers via the Internet. Not a matching service but, rather, a support site for those using services such as NetAid. Includes materials to help service leaders use the Internet to work with and better serve both online and onsite volunteers. The focus is on programs within the USA.

Programa Voluntários (Brazil) (Portuguese) (http://www.programavoluntarios.org.br/capa.html) This large program in Brazil was launched at the end of 1997 by the Council of the Comunidade Solidária. Programa Voluntários aims to develop conditions for the development of a new volunteer culture, concerned with the efficiency of volunteer services and the qualification of volunteers and institutions. Online volunteering is one of their recent features.

Hacesfalta (Spanish) (http://www.hacesfalta.org/index2.htm) Hacesfalta facilitates volunteering and promotes volunteerism. Offers news about volunteering (legislation, events, courses, etc.), a space where volunteers can share experiences and seek out collaborations, forums to discuss and debate volunteerism, and a database of volunteering opportunities, including online volunteering opportunities, focused primarily on Latin American and South American countries.

Idealist in English (http://www.idealist.org/) and en Espanol (Spanish) A program by Action Without Borders. *Idealist* features an extensive listings of organizations all over the world, promoting both onsite and online volunteering opportunities in a range of countries.

Part 3: Some general considerations

3.1 How ICT use differs in developing countries

The best practice examples of the uses of ICT to generate employment for young people have demonstrated that technology is a tool that can be applied in a variety of ways. The challenge for each country and for different socio-economic groups within a country is to work out the most cost effective way to use ICT. The ways that high-income countries use ICT need not apply to middle-or low-income countries of socio-economic groupings within countries. Four common but incorrect assumptions about the use of ICT in middle-and low-income levels have been identified.[88] These are:

1. ICT access requires personal ownership of a computer.

2. ICT access requires use of expensive computers.

3. The infrastructure commonly used in high-income countries to access ICT is not readily available in many developing countries.

4. The use of the Internet is text-based and is English dominated which means that users need to be literate and literate in English in particular.[89]

The best practice examples show that access to ICT does not require personal ownership of the computer. CK Prahalad points out that while it may be common for people in wealthy countries to own a computer for personal convenience reasons, the poor in developing countries may decide to make an equally rational trade-off offering low-cost access (and no cash investment) for a level of personal inconvenience.[90] This different approach to access means that a range of telecommunications-based services such as making telephone calls, sending faxes or using the Internet can be used on a fee-for-service basis through facilities known variously as cyber cafes or telecentres. The more common pattern of ICT usage in developing countries, therefore, is likely to be access through community facilities, as with many other services in these countries, rather than through personalised access for individual families.

The second incorrect assumption is that ICT access requires use of expensive computers. This assumption is being challenged in Brazil, India and China where simplified, low-cost versions of computers have been or are being developed.[91] In India, the first working prototypes of the Simputer have been developed. The Simputer will cost around US$200 and will run on widely available AAA batteries. It is slightly larger than the popular Palm handheld computers, and has a built-in web browser, e-mail software, a text-to-speech program for several Indian languages and a sound player. A feature of the Simputer is the use of a Smart Card to enable individuals to use and store data utilising a community-based machine (see Box 22). The machine is planned to be available for sale by March 2002.[92]

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[88] Prahalad, CK (2000): 'Let 's focus on the digital dividend: Conventional mental models may be an impediment to the diffusion of internet benefits to poorer countries,' *European Business Forum* (http://www.ebfonline.com/at_forum/at_forum.asp?linked=32&id=26).
[89] *Ibid.*
[90] *Ibid.*
[91] Anderson, Rachel 2001: 'Low-Cost Computers for the People,' *Benton Foundation*, August 27, http://www.digitaldividenetwork.org/content/stories/index.cfm?key=178
[92] *Ibid.*

Box 22: The Simputer: 'radical simplicity for universal access'

The Simputer is a low-cost portable alternative to PCs…,. It has a special role in the Third World because it ensures that illiteracy is no longer a barrier to handling a computer. The key to bridging the digital divide is to have shared devices that permit truly simple and natural user interfaces based on sight, touch and audio.

The projected cost of the Simputer is about Rs 9000 at large volumes. But even this is beyond the means of most citizens. The Smart Card feature that the Simputer provides enables the Simputer to be shared by a community. A local community such as the village panchayat, the village school, a kiosk, a village postman, or even a shopkeeper should be able to loan the device to individuals for some length of time and then pass it on to others in the community.

The Simputer, through its Smart Card feature, allows for personal information management at the individual level for an unlimited number of users. The impact of this feature coupled with the rich connectivity of the Simputer can be dramatic. Applications in diverse sectors such as micro banking, large data collection, agricultural information and as a school laboratory are now made possible at an affordable price.

Source: http://www.simputer.org/simputer/about/

The third assumption that the infrastructure required is not available in many developing countries is also easily challenged in many low-and middle-income countries as the spread of mobile phones has opened up access to telephony in place of fixed-line telephones. Mobile phones in Bangladesh, China, Philippines, Indonesia, Sri Lanka and Malaysia are often a substitute for fixed-line telephones, rather than a complement as in high-income countries.[93] In these countries, fixed-line telephones are regarded as expensive and unreliable whereas mobile phones are viewed as more reliable and easier to use.

The fourth assumption about IVT usage in developing countries is that the Internet is only for the literate and within this group, those who are literate in English. However, literacy is not required to gain access to information. It is possible to send e-mails that consist of voice messages. However, it needs to be acknowledged in relation to ICT that 'literacy multiplies the potential gains – and multiplies the channels through which such gains can be received,'[94]

Literacy in English is also not an essential precondition for use of the Internet. The dominance of English on the Internet is receding. It is estimated that English is now the mother tongue of less than half of all Internet users, and the proportion is falling all the time.[95] Other languages such as German, Russian and Spanish are said to be spreading at exponential speed on the Web. The Internet is also said to be helping to revive minority languages and cultures.[96]

However, much still needs to be done to develop relevant content in local languages for use by those who would otherwise be excluded. This applies particularly to the availability in local languages of information from government sources. The opportunities for young people to act as 'information intermediaries' was highlighted above.

[93] Canadian International Development Agency (CIDA) (2000): *Grameen Telecom's Village Phone Programme in Rural Bangladesh:A Multi-Media Case Study Final Report*, p. 16 (www.telecommons.com/villagephone/finalreport.pdf).
[94] ILO (2000), *World Employment Report 2001:Life at Work in the Information Economy*. Geneva, p.62.
[95] James Barry, 2001, 'Online, and Off, English's Hegemony Is Challenged Globally', *The International Herald Tribune*, February 12, (www.iht.com).
[96] Barry James, (2001): *Ibid.*

3.2 Inequalities in access to ICT skills and employment

It is important to acknowledge that not all young people have an equal opportunity to acquire ICT-related skills or to benefit from ICT-generated employment opportunities. Access to relevant education and training is not equally distributed according to sex. While women have made notable inroads into highly skilled ICT work, such as software programmers or computer analysts, in India and Malaysia, The number of women in the ICT sector is still far from a balance. In India, for example, women occupy nearly 20 per cent of the professional jobs in the software industry, with higher percentages found in Calcutta and Bangalore. In Malaysia, they are 30 per cent of IT professionals, including those at the professional level.[97]

> *However, nowhere are these jobs the majority of those held by women in the workforce Nor are women the majority of workers in these occupations. The women working in these areas comprise a small, educated elite. However, it is an important area for women to break into and to become role models for the next generation whose numbers in these fields are likely to increase.*[98]

A recent report on gender access to information technology in developing countries notes that the jobs that women have gained through IT have been in countries with high rates of female literacy in Asia (notably in the Philippines, Thailand and Vietnam – see Table A4 in Attachment 1) and Latin America. The report concludes from this: 'As information technology becomes more tightly linked with the development of knowledge economies, education for young women becomes more and more important'.[99]

Another factor limiting the potential benefits of ICT-related employment for young women is likely to be workplace practices such as long working hours. These work practices serve to reproduce the patterns of gender segregation channelling young women into lower skilled, lower paid jobs with more repetitive and less creative work.[100]

3.4 Supporting conditions needed

It is important to emphasise that use of ICT to generate employment for young people is not a straightforward and easy option for governments, enterprises or NGOs. The optimism inherent in highlighting the benefits of ICT as a development tool needs to be balanced by reference to the preconditions needed for a comprehensive ICT strategy to work. A report published in July 2001 for The Digital Opportunity Initiative of the United Nations Development Program (UNDP) emphasises five key strategic elements that need to be addressed for countries to develop successful ICT strategies.[101] These relate to the provision of appropriate infrastructure, human capacity, supportive public policy, support for enterprises and appropriate content and applications. The OECD's report The OECD's 2001 report *The New Economy: Beyond the Hype* recommends a comprehensive growth strategy based on five key prongs (see Box 23).

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[97] Hafkin, Nancy and Taggart, Nancy (2001): *Gender, Information Technology, and Developing Countries: An Analytic Study.* For the Office of Women in Development, Bureau for Global Programs, Field Support and Research, United States Agency for International Development, June, (http://www.usaid.gov/wid/pubs/it01.htm) , p. 41.

[98] *Ibid*, p. 41.

[99] *Ibid*, p. 43.

[100] ILO (2001): *'Generating decent work for young people: An Issues Paper prepared for the Secretary-General's Youth Employment Network'* (http://www.un.org/esa/socdev/youthemployment/Issues%20paper.doc) , p. 9.

[101] Accenture, Markle Foundation and the UNDP (2001): *Creating a Development Dynamic: Final Report of the Digital Opportunity Initiative*, July, (init.org/framework/pages/contents.html).

Box 23: Need for a comprehensive strategy

- Strengthen economic and social fundamentals, by ensuring macroeconomic stability, encouraging openness, improving the functioning of markets and institutions, and addressing the distributive consequences of change.
- Facilitate the diffusion of ICT, by increasing competition in telecommunications and technology, improving skills, building confidence and making electronic government a priority.
- Foster innovation, by giving greater priority to fundamental research, improving the effectiveness of public R&D funding, and promoting the flow of knowledge between science and industry.
- Invest in human capital, by strengthening education and training, making the teaching profession more attractive, improving the links between education and the labour market and adapting labour market institutions to the changing nature of work.
- Stimulate firm creation, by improving access to high-risk finance, reducing burdensome administrative regulations and instilling positive attitudes towards entrepreneurship.

Source: OECD, 2001, *The New Economy: Beyond the Hype.*

3. Conclusion

The main aim of this paper has been to show in practical terms how ICT has been used to generate employment for young people in low and middle-income countries. The focus has been on identifying best practice examples in relation to five key principles: initiatives involving self-employment and entrepreneurship, the use of public-private partnerships, a focus on the most vulnerable among young people, ways to link informal sector activities with the digital economy, and the participation of young people at the design and implementation stages.

The paper has also sought to balance the optimism of much of the writing on the potential of ICT for generating employment with reference also to the barriers that many developing countries in particular have to address to realise this potential. Innovative bottom-up initiatives show what can be achieved. However, it needs to be acknowledged that stand-alone efforts by individuals or groups to tap the potential of ICT are limited in what they can achieve.

For these best practice initiatives to diffuse more widely, they need to be linked to an integrated strategy delivered by governments and the private sector with the support of non-government organisations and international agencies. As noted above, the integrated strategy needs to encompass appropriate infrastructure provision, an adequate skills pool, supportive public policy in general, and financial support for enterprises in particular. Capitalising on the potential of the Internet also requires relevant local content and applications that are suited to the needs and capabilities of most of the country's population.[102] Specific recommendations on how to do this based on the above analysis are outlined below.

[102] Accenture, Markle Foundation and the UNDP (2001): *Creating a Development Dynamic: Final Report of the Digital Opportunity Initiative*, July, (init.org/framework/pages/contents.html).

4. Recommendations

4.1 The range of initiatives outlined above shows the potential for ICT to generate employment for young people. However, this potential will not be realised unless a country has a range of supporting strategies in place. Young people need to assess specific policies of their governments, NGOs and businesses in relation to the key elements required for a comprehensive strategy to make the most effective use of ICT to generate employment.

4.2 The best practice examples show that ICT offers a number of opportunities for young people to become self-employed or to start up a small enterprise due to the specialist IT skills they are more likely to have. Therefore, young people could be encouraged by governments to view self-employment in ICT related activities as a viable option. Governments or preferably an NGO run by young people could publicise case studies of young self-employed using ICT, perhaps on a web site, These case studies could act as valuable role models for young people, presenting them with an image of success and achievement.[103]

4.3 However, other skills are also needed to manage a small business. These include the following: managing cash flow; being able to assess one's strength and ability; learning how to seek information and advice; making decisions; planning one's time and energy; carrying through an agreed responsibility; communicating and negotiating; dealing with people in power and authority; solving problems, resolving conflict; evaluating one's performance; and coping with stress and tension.[104] Case studies of young people setting up their own enterprises in an ICT-related activity should emphasise the importance of these skills and the obstacles encountered.

4.4 National or regional competitions are a high profile way of promoting youth enterprises related to ICT. Competitions could be promoted as an opportunity for young women and men to explore and develop a business idea with the assistance of a business adviser or mentor. The competition is likely to generate significant publicity in the media.[105]

4.5 Mentor support for starting ICT-related enterprises is a key service that governments or NGOs could organise. The role of the mentor is to offer informal advice and guidance based on relevant business experience. It may also be a means of making it easier for young people to access business networks to obtain other forms of support.[106]

4.6 The lack of capital may be a primary constraint on a young people starting and expanding an enterprise. For several possible reasons, young people might face this constraint more than other age groups. It is recommended, therefore, that micro credit programs scrutinise their borrower profile and develop, if necessary, specific measures to make it easier for young people to obtain credit.

4.7 According to the UN ICT Taskforce, partnerships between governments and private sector enterprises are emerging as 'essential' to enable the transfer of ICT infrastructure and knowledge to developing countries.[107] It is recommended that

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[103] White, S and Kenyon, P. (2001): *Enterprise-Based Youth Employment Policies, Strategies and Programmes,* International Labour Office: Geneva, p. 17.
[104] OECD (1989): *Towards an enterprising culture—A challenge for education and training,* Organisation for Economic Cooperation & Development: Paris.
[105] White, S and Kenyon, P. (2001): p. 18.
[106] *Ibid* p. 24.
[107] UN ICT Task Force (2001): *Report of the Secretary-General: The role of the United Nations in promoting development, …especially information and communication technologies, …through partnerships with relevant stakeholders, including the private sector,* E/2001/59, 2 May, para. 70, p. 33.

governments explore the use of public-private partnerships in relation to ICT as the basis for creating/expanding employment opportunities in this area or in providing up-to-date ICT skills.

4.8 The UN ICT Taskforce has recommended that the UN and its agencies assist developing countries and regional institutions of developing countries in 'building local, national and regional networks of partnerships suited to the demands of their particular challenges.'[108] One way to assist the process of building networks is to create a web site to post information about case studies of partnership initiatives in different countries and to otherwise assist in the exchange of information.

4.9 The principles that govern partnerships between governments and the private sector need to be outlined clearly. It is recommended that the principles underpinning the business arrangements developed by governments and private sector companies in relation to ICT transfer be made transparent and subject to public debate.

4.10 It is recommended that the business model which is the basis of a partnership between governments and the private sector in relation to ICT should identify and attempt to quantify the public good benefits as well as the private benefits that both parties are seeking to achieve.

4.11 It is also recommended that the business models underpinning public-private partnerships should incorporate a strong element of corporate social responsibility and a significant development dimension. Where possible, such business models should explicitly address the needs of the poor.[109]

4.12 The UN ICT Taskforce has recommended that the United Nations undertake an analysis of existing public-private partnerships in ICT to identify the lessons learned in this area to enable their incorporation into any new partnerships. The Taskforce has recommended specifically that mechanisms and tools be developed to 'monitor, measure and evaluate the effectiveness of knowledge and technology transfer partnership initiatives in terms of their performance, especially in relation to achieving specific socio-economic goals and targets as defined by the partners.'[110]

4.13 The best practice examples have also shown that it is possible through ICT for craft producers in poor and isolated regions to tap directly into regional, national and global markets. It is recommended that case studies of young people in poor and isolated regions selling their wares into larger markets via the Internet be undertaken and publicised by governments, including posting them on a web site. It is further recommended that the case studies identify the obstacles faced and the solutions found.

4.14 The participation of young people in the development and implementation of initiatives involving the use of ICT to generate employment is likely to be a key factor in the success of such initiatives. However, it was difficult to find best practice examples of where this has been done successfully. It is recommended that governments encourage young people, through their representative organisations, to participate actively in developing concepts, implementing projects and evaluating the outcomes of ICT-related employment generation initiatives. Information in the form of case studies about the processes for encouraging the participation of young people in public policy formation and implementation should also be made available on web sites.

[108] UN ICT Taskforce (2001): *ibid*, para. 72, p. 35.
[109] UN ICT Taskforce, 2001, *ibid*, para. 72, p. 34.
[110] *Ibid.*

4.15 There is considerable scope for young people from the high-income countries to offer assistance to their peers in low and middle income countries in relation to making better use of ICT and the Internet in particular. This assistance could take the form of a response to a specific invitation to offer help. It could take the form of face-to-face visits and follow up contact by e-mail.

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