Revisiting the "Magic Box":
Case studies in local appropriation of information and communication technologies (ICTs)
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Author’s biographies
Acknowledgements

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New information and communications technologies (ICTs), the Internet and mobile telephony in particular, are greatly transforming how we work, organize and communicate with each other. New communication technologies and new ways of handling information radically change relationships between individuals and groups in organizations and societies. Indeed, along with the introduction of the printing press and the telephone, new ICTs are having a fundamental influence on the world.

However, in some areas the ICT revolution has served only to widen existing economic and social gaps. Therefore, if opportunities are to be realized, poor people must be active determinants of the process, not just passive onlookers. Solutions that simply connect people to each other cannot solve complex institutional and policy issues and failure to properly address ‘who’ has access to and control over technologies can exacerbate existing inequalities.

In 2001, FAO compiled a desk-based literature review of the ICT scene and asked whether poor communities and groups had taken ownership or appropriated ICTs for their own use. This was in part a reaction to heavily financed donor initiatives being carried out at that time but also partly because of the lack of evidence of impact, owning to the newness of ICT projects. Other research studies at the time began to raise concerns about the absence of analytical tools, indicators and evaluation methodologies that should have been integral components of ICT-based pilot projects, but were sadly lacking. Most of the ICT-literature to date has focused on documenting case studies and this book is no exception. However case studies tend to be one off snapshots of a community’s use of certain technologies at a given time and few research projects return to these case studies to document change. This was the primary driving force behind this book – to take a snapshot from the past and revisit it two years on and at the same time, to document some new case studies in the hope that others will take this evidence and return to it in a few years. Thus, over time we should build up a body of knowledge that tracks the lifecycle of ICT projects and documents the benefits these interventions bring to peoples’ lives.

The Communication for Development Group of the Extension, Education and Communication Service (SDRE) of FAO has over 30 years of experience in communication projects, methodologies and media, particularly in pioneering the use of community-based and traditional media like drama, video and community radio. FAO has also emphasized the critical role that participatory communication plays in involving communities as active participants in rural development. In the mid 1990s attention turned to the
potential role that new and increasingly cheaper ICTs could play in rural development, including the seminal publication ‘The First Mile of Connectivity.’ The use of the term ‘first’ mile is taken from the perspective of the rural communities looking to connect with external information sources and communication channels and to strengthen their own existing channels and locally generated content. There have been many publications, workshops and conferences since then that have focused on the use and adoption of ICTs by rural people. These include the study, ‘Discovering the Magic Box: Local appropriation of ICTs’.

Local appropriation of ICTs broadly means that rural communities are able to make use of, adapt, sometimes own, but certainly benefit from information and communication activities brought about by ICT based interventions. Two years later this publication, ‘Revisiting the Magic Box’, is another contribution to this evolving debate.

We hope that you enjoy this short investigation into local appropriation of ICTs. We welcome feedback on this publication and hope that other researchers will take up the challenge to revisit these cases in the years to come.

Ester Zulberti
Chief
FAO Extension, Education and Communication Service

Case studies in local appropriations of ICTs
Chapter 1: ‘Revisiting the Magic Box’ does exactly that, it returns to the premise and the case studies documented in the first paper to find out what, if anything, has happened over the last two years and presents alarmingly sparse feedback on those studies. Undeterred by the lack of new information from the case studies, the chapter considers the premise of the ‘Magic Box’ paper and the guiding principles for good ICT interventions, and questions whether these principles still hold true today.

During the course of the research the authors realized the difficulty in searching for community-driven examples of local appropriation. Projects that operated without external support were less likely to have Web sites and documented materials, therefore desk-based research would have its limitations. To overcome this weakness three country-based studies were commissioned and are presented as independent case studies showing the ongoing appropriation of ICTs by grassroots organizations using a variety of ICTs.

Chapter 2: The Women of Uganda Network (WOUGNET), shares an evaluation of the information services offered to its members and provides a candid account of the constraints still facing the information-sharing network.

Chapter 3: Feminist International Radio Endeavour (FIRE) turns the tenets of community radio activism on its head to broadcast globally over the Internet on issues such as gender, racism and the environment.

Chapter 4: Community radio in Mexico documents a number of community radio stations and networks and their attempts to stay afloat through increased networking and advocacy and by connecting to the Internet.

A short Conclusion brings together the varied examples of local appropriation to determine whether the guiding principles of ICT literature today give sufficient direction for ICT interventions in the future.
FOOTNOTES AND REFERENCES

1 ‘The first mile of connectivity: Advancing telecommunications for rural development through participatory communication.’
SD Dimensions, July 1999
http://www.fao.org/sd/cddirect/cdrc0025.html

2 FAO Sustainable Dimensions Web site: Communication for Development
http://www.fao.org/sd/KN1_en.htm

3 Sabine I. Michiels and L. Van Crowder ‘Discovering the “Magic Box”: Local appropriation of information and communication technologies (ICTs)
FAO Sustainable Development Department
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<tr>
<td>AEDES</td>
<td>Specialist Association for Sustainable Development (Peru)</td>
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<td>ALFA</td>
<td>Abundant Life for All Ministries</td>
</tr>
<tr>
<td>AIMMC</td>
<td>Assembly of Indigenous Migrants to Mexico City (Asamblea de Migrantes Indígenas de la Ciudad de México)</td>
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<tr>
<td>AISI</td>
<td>African Information Society Initiative (<a href="http://www.uneca.org/aisi/">http://www.uneca.org/aisi/</a>)</td>
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<tr>
<td>AMARC</td>
<td>World Association of Community Radio Broadcasters (<a href="http://www.amarc.org/amarc/ang/">http://www.amarc.org/amarc/ang/</a>)</td>
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<tr>
<td>APCC</td>
<td>Association for Progressive Communications (<a href="http://www.apc.org/english/index.shtml">http://www.apc.org/english/index.shtml</a>)</td>
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<tr>
<td>CBO</td>
<td>Community-Based Organization</td>
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<tr>
<td>CEEWA</td>
<td>Council for Economic Empowerment of Women of Africa (<a href="http://www.wougnet.org/Profiles/ceewau.html">http://www.wougnet.org/Profiles/ceewau.html</a>)</td>
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<tr>
<td>CNI</td>
<td>National Indigenous Congress (Mexico) (Congreso Nacional Indígena)</td>
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<td>CNN</td>
<td>Cable News Network (<a href="http://www.cnn.com">http://www.cnn.com</a>)</td>
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<td>COAIM</td>
<td>Consultation on Agricultural Information Management (<a href="http://www.fao.org/coaim/index_en.asp">http://www.fao.org/coaim/index_en.asp</a>)</td>
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<tr>
<td>COFETEL</td>
<td>National Telecommunications Committee (Mexico) (Comisión Federal de Telecomunicaciones)</td>
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<tr>
<td>CONACULTA</td>
<td>National Culture and Arts Council (Mexico) (Consejo Nacional para la Cultura y las Artes)</td>
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<td>DFID</td>
<td>Department for International Development (<a href="http://www.dfid.gov.uk/">http://www.dfid.gov.uk/</a>)</td>
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<tr>
<td>DIP</td>
<td>District Information Portals (<a href="http://www.dip.go.ug">http://www.dip.go.ug</a>)</td>
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<tr>
<td>EDUSAT</td>
<td>Satellite Broadcast System for Education (Mexico)</td>
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<tr>
<td>EZLN</td>
<td>National Liberation Army of the Zapatista's (Mexico) (Ejército Zapatista de Liberación Nacional)</td>
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<td>FAO</td>
<td>Food and Agriculture Organization of the United Nations (<a href="http://www.fao.org">http://www.fao.org</a>)</td>
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<td>FARC</td>
<td>Revolutionary Armed Forces of Colombia</td>
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<td>FEMNET</td>
<td>African Women's Development and Communications Network (<a href="http://www.femnet.or.ke/">http://www.femnet.or.ke/</a>)</td>
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<td>FIRE</td>
<td>Feminist International Radio Endeavour (<a href="http://www.fire.or.cr/indexeng.htm">http://www.fire.or.cr/indexeng.htm</a>)</td>
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<tr>
<td>FOOD</td>
<td>The Foundation of Occupational Development</td>
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<td>GDP</td>
<td>Gross Domestic Product</td>
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<td>GEM</td>
<td>Gender Evaluation Methodology (<a href="http://www.apcwomen.org/gem/">http://www.apcwomen.org/gem/</a>)</td>
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<td>GFW</td>
<td>Global Fund for Women (<a href="http://www.globalfundforwomen.org/">http://www.globalfundforwomen.org/</a>)</td>
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<td>HEED</td>
<td>Health, Educational and Economic Development (Bangladesh) (<a href="http://www.heedbangladesh.org">http://www.heedbangladesh.org</a>)</td>
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<td>HIVOS</td>
<td>Humanist Institute for Development (<a href="http://www.hivos.nl">http://www.hivos.nl</a>)</td>
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<tr>
<td>HIV/AIDS</td>
<td>Human Immunodeficiency Virus/Acquired Immune Deficiency Syndrome</td>
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<td>ICE</td>
<td>Institute for Electricity (Costa Rica)</td>
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<td>ICT</td>
<td>Information and Communication Technology</td>
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<td>ICTs</td>
<td>Information and Communication Technologies</td>
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<td>IDRC</td>
<td>International Development Research Centre (<a href="http://www.idrc.ca">http://www.idrc.ca</a>)</td>
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<td>IDM</td>
<td>Innovative Demand Models</td>
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<td>IICD</td>
<td>International Institute for Communication and Development (<a href="http://www.iicd.org/base/home">http://www.iicd.org/base/home</a>)</td>
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<tr>
<td>IMEVISION</td>
<td>Mexico's State-owned television network (Mexico)</td>
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<td>INEGI</td>
<td>National Institute of Statistics, Geography and Informatics (Mexico) Instituto Nacional de Estadística, Geografía e Informática</td>
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<tr>
<td>INGO</td>
<td>International Non-Governmental Organization</td>
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<td>INI</td>
<td>National Indigenous Institute (Mexico) Instituto Nacional Indigenista</td>
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<tr>
<td>Isis-WICCE</td>
<td>Isis-Women's International Cross-Cultural Exchange (Isis-WICCE) (<a href="http://www.isis.or.ug/">http://www.isis.or.ug/</a>)</td>
</tr>
<tr>
<td>ISP</td>
<td>Internet Service Provider</td>
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<tr>
<td>ITU</td>
<td>International Telecommunications Union (<a href="http://www.itu.int">http://www.itu.int</a>)</td>
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<td>KITE</td>
<td>Keys to Information Technology and Education (<a href="http://www.kiteinc.org/">http://www.kiteinc.org/</a>)</td>
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<td>LINCOS</td>
<td>Little Intelligent Communities (<a href="http://www.media.mit.edu/unwired/theproject.htm">http://www.media.mit.edu/unwired/theproject.htm</a>)</td>
</tr>
<tr>
<td>LWA</td>
<td>Lunguuja Women's Association (<a href="http://www.wougnet.org/Profiles/lunguuja.html">http://www.wougnet.org/Profiles/lunguuja.html</a>)</td>
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<tr>
<td>MDGs</td>
<td>Millennium Development Goals</td>
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<tr>
<td>MIT</td>
<td>Massachusetts Institute of Technology (<a href="http://www.mit.edu">http://www.mit.edu</a>)</td>
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<tr>
<td>MNCs</td>
<td>Multi-national Corporations</td>
</tr>
<tr>
<td>MP3</td>
<td>(mpeg layer 3) refers to compressed audio files for use on computers and portable personal stereos</td>
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<tr>
<td>MTN</td>
<td>Mobile Telephone Network</td>
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<tr>
<td>MUPABI</td>
<td>‘Women for Wealth’ (Dominican Republic) Mujeres Para Bienestar</td>
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<tr>
<td>NGO</td>
<td>Non-Governmental Organization</td>
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<tr>
<td>ODA</td>
<td>Overseas Development Aid</td>
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<tr>
<td>ODI</td>
<td>Overseas Development Institute</td>
</tr>
<tr>
<td>PEAP</td>
<td>Poverty Eradication Plan (Uganda)</td>
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<tr>
<td>PFP</td>
<td>Federal Preventive Police (Mexico)</td>
</tr>
<tr>
<td>PMA</td>
<td>Plan for the Modernization of Agriculture (Uganda)</td>
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<tr>
<td>RCDF</td>
<td>Rural Communications Development Fund</td>
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<tr>
<td>SANGONeT</td>
<td>South African NGO Network</td>
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<tr>
<td>SCT</td>
<td>Ministry of Communication and Transport (Mexico)</td>
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<td>SDRE</td>
<td>FAO Extension, Education and Communication Service</td>
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<tr>
<td>SEP</td>
<td>Public Education Ministry (Mexico)</td>
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<td>SEGOB</td>
<td>Ministry for the Interior (Mexico)</td>
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<tr>
<td>SS</td>
<td>Ministry of Health (Mexico)</td>
</tr>
<tr>
<td>S@T</td>
<td>Network for Latin America and Caribbean Telecentres</td>
</tr>
<tr>
<td>TELMEX</td>
<td>Mexico’s State owned telecommunications company (Mexico)</td>
</tr>
<tr>
<td>UCC</td>
<td>Uganda Communications Commission</td>
</tr>
<tr>
<td>UNAM</td>
<td>National University of México (Mexico)</td>
</tr>
<tr>
<td>UNESCO</td>
<td>United Nations Educational, Scientific and Cultural Organization</td>
</tr>
<tr>
<td>UTL</td>
<td>Uganda Telecom Limited</td>
</tr>
<tr>
<td>WCAR</td>
<td>World Conference Against Racism</td>
</tr>
<tr>
<td>WNSP</td>
<td>Women’s Networking Support Programme</td>
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<tr>
<td>WOUgNET</td>
<td>Women of Uganda Network</td>
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<tr>
<td>WSIS</td>
<td>World Summit on the Information Society</td>
</tr>
<tr>
<td>WSRP</td>
<td>WorldSpace Satellite Radio Program</td>
</tr>
<tr>
<td>ZWRCN</td>
<td>Zimbabwe Women’s Resource Centre and Network</td>
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INTRODUCTION

“Local appropriation of ICTs is about communities and groups selecting and adopting communication tools according to the different information and communication needs identified by them, and then adapting the technologies so that they become rooted in their own social, economic and cultural processes.”

The quotation above is taken from Michiels & Van Crowder’s 2001 paper, ‘Discovering the “Magic Box”: Local appropriation of information and communication technologies (ICTs)’. In the paper the authors consider how ICTs might be locally appropriated by low-income communities. Their approach assumes that this appropriation will benefit the communities and lead to increased income or access to services, or at least more sustainable livelihoods. In today’s terms and language the authors were discussing the contribution of ICTs to the Millennium Development Goals, in particular Development Goal 8 ‘to make available the benefits of new technologies, especially information and communication technologies’.

The paper provided some guiding principles to foster local appropriation of ICTs, which can also be read as good practice principles for any technology intervention and concluded with two very important observations:

- that there was very little hard data on the impact of ICTs, and even fewer evaluations;
that inclusion, and thereby local appropriation, of ICTs in development activities was dependent on the normal rules of engagement for development interventions, i.e. conducting a needs assessment, participation in the planning and execution of the project by local communities, consideration of ownership issues, of organizational structure issues.

The authors noted that the fast-changing world of ICTs required continual review, and both quantitative and qualitative assessment to ensure that lessons could be drawn from community appropriation of new technologies. Two years later, the sector has continued to develop rapidly and this book is one checkpoint among many on the information superhighway – a chance to look back into the ‘Magic Box’ before moving on equipped with some analytical tools and a review of new case studies.

This chapter gives an overview of local appropriation of ICTs, examines the premise of the first ‘Magic Box’ paper, including revisiting the case studies documented in that paper and considers whether the guiding principles outlined in the ‘Magic Box’ still hold true. Some analytical tools and models are also proposed to enable us to understand and implement these guiding principles. The remaining chapters of this book provides some in-depth case studies on community-based organizations that have appropriated ICTs in order to do their work.

What do we mean by “local appropriation of ICTs”

“The concept of media appropriation has roots in communication theory beginning in the 1970s. It evolved in reaction to mass media theory that posited that people are basically ‘duped and controlled’ by the mass media. Researchers doing cultural studies decided to conduct practical participant observation research on how people interact with the media in their daily lives. They found that rather than being duped by the mass media, people integrated media within their lives and made sense out of it in locally specific ways.”

Local appropriation of ICTs is understood to have taken place when communities have defined their own information and communication needs and preferences, and are employing and adapting technologies to suit their needs. There are many instances, some successful, some not, where external agencies have provided funding or expertise to start up a development project using ICTs. Large scale initiatives of note are, the Worldbank’s infoDev programme and the UNESCO/ITU/IDRC Acacia Telecentre initiative. Within the private sector, both Cisco systems and Hewlett Packard have invested in ‘Learning Academies’ to train developing country scholars in computer systems.

We also have anecdotal stories of entrepreneurs opening village phone kiosks and numerous photocopy shops providing computer and internet access in
Asia but again, these activities are not driven by participatory needs assessment or collective planning by communities or groups. We could argue that the spread of ICTs is best left to the private sector since the proliferation of fax machines and mobile telephony, for example, has not come about through a targeted development intervention. The counter argument to this, and a convincing one at that, posits that without a specific developmental focus on poor, rural and marginalized groups the digital age will bypass these seemingly ‘non profitable’ sectors. Therefore, targeted interventions are called for in the short term, in areas where the private sector is unlikely to venture without some degree of legislative arm twisting.

However, with the exception of the Indian subcontinent, there are very few documented cases of groups of people organizing themselves to appropriate these technologies with an overt development goal or to lobby for policy changes that would expedite the provision of affordable ICTs. One simple explanation for this is that the organizations working in this field do not perceive their activities to be ‘newsworthy’. Nor are these community-based organizations linked to international development agencies that have the means and networks in to publicize local appropriation activities. To uncover community based appropriation of ICTs, field-based research is required to seek out and document these initiatives.

**Local appropriation of ICTs is important because it:**

- contributes to reducing the digital divide (as well as rural-urban, wealth and gender divides) at individual, group and community levels;
- gives a voice to the voiceless (at household, community, national, regional and global levels). For example, communication processes can give rural women a voice to advocate changes in policies, attitudes and social behaviour or customs that negatively affect them;
- fosters and facilitates community decision-making and action and empower people to take control of local development processes;
- advances community ownership of ICTs for development, empowering communities to take charge of all aspects of ICT initiatives, including deciding priority applications, content, training, technical management and even financing; and
- ensures that ICTs serve the purposes of local communities. Through appropriation, communities select and transform the technologies and content to fit their needs, rather than reflect the interests of external groups.

**Was it all hype?**

Quoting Skuse (2000), the ‘Magic Box’ paper notes that, “Much of the debate surrounding the new ICTs is clearly hype. *Travel 25 miles from most*
African capitals and check out the ICT infrastructure because this is pretty revealing." Indeed, in the late 1990s many case studies had more presence on the Web than in the villages they purported to serve. The proliferation of ICT-based projects was in sharp contrast to the absence of any evidence of their application and usefulness for the communities in which they were based. Lessons had not been learned from past technology-driven projects. Donor-sponsored Telecentres were installed in poor and rural communities, particularly in Africa, and very quickly things started to go wrong. The centres were set up by people with scant professional understanding of the business and regulatory environment in which they were to operate and soon suffered from delays in procuring equipment, competition from neighbouring private sector ventures and the rapid loss of newly trained volunteers. The real financial costs involved were rarely documented or divulged to the communities and yet, within three years of having been set up the responsibility for sustaining these centres was being passed to these communities.

The authors of the ‘Magic Box’ paper were understandably cautious in predicting the role of ICTs in development and emphasized that ICT interventions must adhere to the same rules of engagement as other development interventions. The hype that surrounded the early ICT interventions has been tempered by the changes in the global economy and ICT sector. The exponential growth in the ICT sector which culminated in the ‘busting’ of the dot.com boom has given rise to a more realistic appraisal of the role of e-business in global society. Nevertheless, ICTs have assumed a central role in the global economy and this has inevitable implications for developing and transition economies.
GUIDING PRINCIPLES FOR ICT INTERVENTIONS

The following section reconsiders the guiding principles for ICT interventions outlined in the ‘Magic Box’ paper and revisits some of the projects in order to assess whether we have moved significantly towards local appropriation of ICTs. The guiding principles were:

- the need to undertake more rigorous monitoring and evaluation (M&E) of projects and develop frameworks or guidelines for measuring impact;
- that ‘process’ is vital to development interventions;
- the need to focus on the benefits of the new technologies rather than the quantity of technologies available;
- the need for strategic content to ensure that ICTs can be locally appropriated and affect development.

ISSUE 1 – IS THERE NOW EVIDENCE OF IMPACT?

Before undertaking any development intervention, good practice and common sense would suggest that one assesses what has already worked, or not worked, and why. This is of course difficult to do when undertaking pilot projects in an emerging area such as ICTs, however it is precisely for this reason that pilot projects should monitor the changes brought about by the pilot intervention. One of the key observations made in the ‘Magic Box’ paper was that few projects paid attention to monitoring and evaluation of ICT outcomes, with the result that there was little data to assess the actual impact of these technologies on the poor and therefore little sound evidence to merit further project investment. The paper stated:

“There is a need to undertake more rigorous monitoring and evaluation of projects and develop frameworks or guidelines for measuring impact. Since applications of ICTs in community-based development projects are still relatively rare and experimental, future projects and initiatives should build on evaluations of “what works and what doesn’t work”, and why.”

To date there is still an absence of analytical tools and methodologies for monitoring and evaluating ICT interventions. With the exception of IDRC’s 2002 paper on Telecentre Evaluation and Tools, the situation has not changed much in the two years since the ‘Magic Box’ paper was written, although the dearth of data is beginning to be recognized as an issue.

It is important to stress that the impact of ICTs will not be understood through peoples’ access to technology alone but on the impact of ICTs on the social, political and economic structures of communities – on peoples’ livelihoods and on their perceptions of the role that technology can play in their lives.
Has telephony been appropriated by the poor?

A recent study on ‘Innovative Demand Models (IDM)’ by McKemey et al.\textsuperscript{11} looks at the ‘real life’ use and appropriation of telecoms services in Africa, especially in rural and low-income communities. More than 1 800 households were surveyed in Botswana, Uganda and Ghana and the data generated was disaggregated by gender as well as economic status. The study shows that 86 percent of people surveyed in Ghana and Botswana had used the telephone in the previous three months, while 86 percent of respondents in Uganda had used a telephone (with no temporal qualification). The samples represented rural and urban users, and areas with good, medium, poor and no mobile phone coverage.

The research shows that people are prepared to travel from a no-coverage zone to a nearby zone to make a call and that while the number of calls is not always high, telephones are a significant part of communication networks, even in rural areas. People will get hold of a telephone if they really need one. This is equally true for women as for men as the study found no gender differentiation in use patterns in Botswana or Ghana.

There are also examples of adaptation, so that the poor keep the costs of telephony to a minimum – a sign of true appropriation. ‘Beeping’ for example, is phoning someone and ringing off so that they know you have tried to call and phone you back. This means that poorer rural family members can transfer the cost of a call onto their richer urban relative. Operators in Africa claim that a fifth of all calls at any given time on the network are ‘beepers’. In itself this “reverse charging” is not so special, but phone companies want to curtail beeping from public phones, so operators are instructed to block the beeper’s number. This means that the person receiving the beep does not know what number to call back. However, the study showed that many people had established a coding arrangement with relatives so that a certain number of beeps would indicate who was calling and from which phone booth.

**Beep, beep. Call me!**
From the example above, we see there is increasing evidence to suggest that telephones have been appropriated for daily use. There is also evidence to suggest that a strategic telephone call could save lives. In this case, measuring call traffic would not reveal the strategic nature of telephones in the communication system of the community. We need data that does just that.

**Case studies – do they tell us about the impact of a project?**

A few research studies have tried to combine quantitative and qualitative data to identify impact but the main vehicle for sharing information about ICT projects is through case studies, and this book is no exception. Whether case studies are valuable tools for assessing impact and determining the degree of local appropriation can depend on when the case study is written. As part of the research carried out for this book, all the cases mentioned in the ‘Magic Box’ paper were followed up via e-mail or the Internet. From the outset, the results were disappointing. The original ICT cases presented constituted an arbitrary list, made up of those who had caught the attention of the desk-bound authors of the ‘Magic Box’ paper. One of the claims made at the time was that since ICT initiatives were so new projects and programmes could be excused from publishing evaluative data. Revisiting the 2001 cases does at least give us two points on a time line, and we know that the cases have had at least two years to learn some lessons. Each Web site was visited – where it existed – and contact was made with each project to solicit more news and, if possible, data.

Of the 24 cases mentioned, we were unable to connect with or supply any extra information on six. The common theme among these six seemed to be that they were small, local initiatives which may have started with external finance but which did not have institutional links to international donors. However, the lack of response does not necessarily mean that the initiatives are not still continuing – they may have had connectivity problems. This left us with 18 cases. A further four were willing to share the information that they had had significant problems, in particular external shocks a fire burning down the centre, civil unrest, lack of infrastructure, high levels of illiteracy, and changes to external host systems. Of the remaining 14 that have shared up-to-date information, the majority have expanded and are growing. However only one out of the 14 offered evaluation data – this only seems to confirm the continued need for more rigorous monitoring and evaluation of ICT-based projects and in this instance, the case studies mentioned cannot continue claiming that their projects are too new to evaluate.

Although the majority of the 24 case studies originally documented are still functioning the obvious absence of any data that demonstrates how well or otherwise they are doing is disappointing and does not provide sufficient evidence to make substantial claims. However, looking further a field for evidence of impact, there are other studies conducted since 2001 that provide some confort.
Sustainable ICT Case studies

This completed research study looks at how different communities have appropriated ICTs and concludes that there is still a need for clear monitoring and evaluation. Twelve case studies in all were selected on the basis that they were self-sustaining; small enough to be replicable by other NGOs and communities; and that they had an anti-poverty or development dimension. Finding 12 case studies which met these criteria was not an easy task. In a conclusion that echoes that of the ‘Magic Box’ paper, the authors noted that several projects have received more attention than really justified because of connections with international organizations, while the global community has missed some projects that fulfilled the criteria because of their low media profiles.

These case studies show that technology can enhance development projects but the research undertaken could not prove that an ICT-based activity aimed at increasing income for the poor could achieve economic sustainability. However, the studies do indicate that this is beginning to happen in some cases, and the prospects for the future are encouraging. More importantly the case studies clearly show elements of institutional and social sustainability.

Some organizations are beginning to shift focus away from the technological component in ICTs to consider the wider systemic context in which information and communication are an integral part of all our lives. Although this study does not provide evidence of impact, the ‘livelihood framework’ proposed in the study below is a significant step towards providing an analytical tool for assessing impact.

Livelihoods approaches to information and communication in support of rural development and food security

An ongoing collaborative research project between FAO, DFID and ODI considers the links between information, communication and rural livelihoods. The research materials are available online and include a literature review and three country studies from India, Ghana and Uganda. The case studies show the critical importance of communication and information to the livelihoods framework at every level. In particular they show how effective communication and information management facilitates the acquisition and exchange of information by the poor necessary to develop relevant livelihood strategies; improves communication within and between the institutions responsible for making decisions that affect livelihood options; and empowers poor communities to participate in decision-making processes.

In conclusion, we can say that there is evidence that private sector supply of telephony is expanding, and the poor are appropriating it. Therefore one can argue that the digital age is not completely bypassing so-called ‘non-
profitable’ sectors, and that compared to the amount of case studies that have been written there is still a need for more empirical evidence that demonstrates the impact and local appropriation of ICTs. One way to do this would be to revisit case studies periodically so that the evolving integration of ICTs into peoples’ lives is documented and can shape future interventions. Lastly, we can say that there are still too few methodologies and tools for assessing impact.

**ISSUE 2 – ‘PROCESS’ IS VITAL TO GOOD DEVELOPMENT**

The ‘Magic Box’ paper noted that there was a lack of understanding among ICT initiatives of the power dynamics within a community and that few of the cases sought to address the strategic interests of the poor. The paper goes on to suggest the following as guiding principles for involving ICTs in development projects.

These principles are quoted again because they remain unchanged and undisputed:

- engage in ongoing **dialogue** with local people about the role and impact of ICTs and the context in which ICTs will be introduced, especially in terms of their information needs, attitudes towards the technologies themselves, applications and products, and possible impacts, both positive and negative;
- **cultural and social sensitivity** to the use of ICT tools for educational and informational purposes are critical;
- the launching of ICT projects needs to be accompanied by **advocacy** so that people have a clear understanding of their roles, and in particular how they will be part of decision-making process;
• engage local people in the validation of the various communication tools and let them identify the most useful medium to meet their needs. This requires acknowledging that people should be active creators and not just passive users of the new ICTs;
• examine the scope and utility of integrating various information and communication tools (radio, Internet, video, print);
• shift from technology-driven projects to a more holistic approach in which the wider systemic economic, social and communication aspects of communities are central concerns. In rural areas, ICT efforts should cover all the multi-faceted aspects of rural livelihoods, including agriculture, non-farm employment, environment, health, sanitation, family planning, education and literacy;
• create partnerships with public and private institutional infrastructures (schools, libraries, hospitals, NGOs) and build on existing formal and non-formal local organizations and communication networks;
• provide needs-sensitive ICTs skills training at all levels, but especially to youth, women and marginal groups. Individual, group and organizational ICT capacities need to be strengthened to ensure the effective use of ICTs for exchange of information, in particular knowledge building for productive activities that lead to wealth generation and improved livelihoods.

One could say that these principles are true for any technology or external intervention into a community’s life. As the Gyandoot16 example below illustrates, projects that are rooted in and run by communities have greater sustainability and potential for wider replication. The ‘Magic Box’ paper identified an absence of participatory needs assessments in ICT initiatives. This too is changing as ICTs become more integrated into ongoing development work.

**Gyandoot - Web-based ambassador of Knowledge**

Gyandoot (Hindi for ‘Ambassador of Knowledge’) is an Internet-based network linking hundreds of villages in the remote, impoverished Dhar district of Madhya Pradesh, India. The network was established in 2000 and has won the Stockholm Challenge Award for public services and democracy, and has often been cited as an exemplary ICT project.

One of the reasons for its success is the high level of community participation in the planning process. The location of sites for the initial Internet kiosks were decided by communities, as was the information to be accessed. This includes market prices, land records and information on laws, training opportunities and education which was previously only available through expensive and often corrupt brokers. The network is also connected to the Dhar District hospital, providing specialist medical advice and referral services to remote villages.
Initiatives such as Gyandoot use ICTs to enhance existing development programmes according to pre-defined and specific needs. Other activities have learned from the mistakes of others and are creating new models, such as the ‘Telecentres for Urban Youth’ project, which starts with a community needs assessment and only introduces ICTs where it is clear that these tools would enhance developmental activities. From the above example we learn that ICT programme design must reflect an understanding of the different ways in which individuals and groups learn, communicate and use information; unless they incorporate this understanding, programmes are likely to fail. ICTs need to be integrated with local communication networks so that people can dialogue with the technologies, interact with each other and create or modify content. The ‘Magic Box’ paper made a call for those involved in ICTs to learn from the wider aid and development sector, and this call remains in place.

**ISSUE 3 – FOCUS ON THE BENEFITS NOT ON THE TECHNOLOGY**

The need to focus on the benefits of new technologies rather than the technology itself is related to the points above. The ‘Magic Box’ paper identified a tendency to focus more on the technology available than the real needs of communities – which is reflected in the promotional bias of ICT case stud-

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The *soochanalayas* or Internet kiosks are run as economically viable units by *soochaks*. These are young, previously unemployed high school graduates who are selected and trained by each village council. They are not paid salaries but derive income from their kiosk, which they must therefore maintain and run. Each *soochanalaya* pays a service charge to the council, which uses the money to fund more kiosks. Through an increased awareness about computers and IT a number of new private computer training institutions have opened, with enrolment increasing by 60 percent.

Gyandoot describes a number of examples where farmers have been able to secure better prices for their crops or improve the effectiveness of Government services to their village:

- Farmers in Bagadi, for example, were getting a rate of Rs. 300 (US$6) per quintal from local traders for their potato crop. On getting the rate slip from their local Gyandoot kiosk, they saw that the current rate in Indore market was Rs. 400 (US$8) per quintal. So they hired a truck to take their produce to Indore, 50 km away;

- The people of Bagdi e-mailed a complaint about the malfunctioning village handpump and it was repaired three days later. Previously complaints had to be made in person to the district officer at headquarters, but now the district government mechanic himself monitors the status of handpumps;

- Gyandoot has affected political decision making in resource allocation with the Member of Parliament allocating Rs. 25 000 000 to set up information kiosks in 3 432 schools for e-education.

Revisiting the “Magic Box”

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ies. For example, the availability of health-related material for download from a Web site may not seem significant enough to warrant publicity. But when a small organization in a remote, rural area downloads, translates and appropriates an item on oral re-hydration and diarrhoea by turning it into posters or a slogan, this will have an immediate and significant impact on livelihoods and become embedded in the daily fabric of community life.

**ICTs or social mobilization? FOOD in Chennai, India**

The Foundation of Occupational Development (FOOD), an NGO based in Chennai, India, began the Inter-City Marketing Network project in April 2001 to help poor urban women increase their income. FOOD worked initially with 100 women’s self-help groups representing about 2,000 women and their families. An initial survey of these groups indicated that while many women derived a small income from producing or repackaging goods at home (mainly food and soap), they were weak at marketing their products and typically sold to middlemen, thereby forfeiting their profit. FOOD provided training in marketing and the use of ‘social capital’, encouraging the groups to focus on production, or marketing, or both, and provided each group with a cell phone to facilitate contact between production and marketing groups, and between groups and customers. While the cell phones were initially provided by the project, today all groups buy their own phones and pay for all call charges. Typically women earn 500-2,000 rupees (US$10-40) a month, representing 10-15 percent of their household incomes.

**Empowerment through ICTs**

**Reaching Europeans markets from Cotahuasi, Perú**

Cotahuasi is located in one of the most economically depressed, remote areas of Peru, 400 km from Arequipa in the south of the country. Annual per capita income here is about US$250, much lower than the national average. Travel to Cotahuasi through rugged terrain takes about 12 hours by car, if the roads are good. If you ask Manuel Tejada, of AEDES an NGO working in Cotahuasi, he will tell you that he is not engaged in e-commerce but that he is only making use of computers and the Internet to make his job easier. AEDES has in fact helped identify buyers for the local, organically produced herb called Kiwicha, in European markets, and organized local producers to supply that market, and gradually built up an export business that in 2002 enabled 235 families to sell abroad about US$350,000 worth of produce.

Are these examples above evidence of e-commerce? Absolutely. Nothing fancy. No hype. These examples focus on the wider business needs of the groups concerned rather than portraying e-commerce as a magical cure. These two examples are evidence of solid organizational groundwork over a period of years, combined with the kind of marketing and networking that the price of a relatively cheap phone call or an expensive, dial-up modem connection will allow.

Studies have shown that e-commerce works best where it is supporting the business-to-business supply chain. While the Peruvian group has found some
new customers, many studies such as Batchelor and Webb, and Humphrey et al. suggest that e-commerce can be more efficient for existing traders but doesn’t necessarily create new business relationships. The reports also note that many barriers and constraints face producers in less developed countries that have to be overcome before e-commerce, with direct selling to international consumers, can be considered a norm. In conclusion, e-commerce is about common sense and the dynamics of marketing and selling. It is not about short cuts to success.

From the examples above we learn that successful interventions by community-based groups and NGOs are those which place ICTs within broader livelihoods goals such as increased incomes or capacity building in business management and marketing.

**Measuring the benefits of ICTs**

In the two years since 2001 the international community has developed and adopted eight Millennium Development Goals (MDGs), with the year 2015 set for reaching them. One of the targets of Goal 8 is, ‘to make available the benefits of new technologies, especially information and communications.’ To date the two key indicators used to measure the of achievement of this goal are:

- teledensity, the number of telephone lines per hundred people
- computers per thousand people

There is clearly a mismatch between the aim and the indicators. Just as a head count of women and men in an organization tells us little about gender relations within that organization, neither does a telephone count shed light on the geographical spread (urban, rural), ownership (businesses, households) or uses to which the telephone is put. While these indicators are easily quantifiable they cannot provide information about the qualitative and strategic role of these technologies.

### Why to people make phone calls?

The telephone study by McKemey et al distinguished between calls to friends and family and calls that have a tangible economic benefit, such as calls to discuss remittances. The results show that the reason for most phone calls is to ‘chat’, although chasing remittances is a close second. The study went on to differentiate between domestic remittances from urban to rural areas – and those from abroad. Enhancing the flow of remittances leads to a significant economic benefit for poor communities. Remittances represent a significant factor in developing country economies. According to the World Bank, in 2001 remittances to developing countries amounted to US$72.3 billion or 1.3 percent of GDP, and in the 1990s remittance receipts exceeded ODA. Remittances can be a stabilizing influence in economic downturns. The appropriation of telephones for a strategic remittance call is therefore of enormous significance to local communities as well as national economies.
In another example, research in Nigeria has shown that people are willing to pay more than US$2 per minute for a strategic phone call. The Fantsuam Foundation, an NGO set up to empower women, deployed this knowledge to set up a phone service and has used the profits to provide telephone and computer access and training in the impoverished southern Kaduna region of the country. In this example one phone hardly counts as significant progress towards the MD Goal, but the benefits of that piece of technology for the community concerned are real, tangible and financial. Clearly, more detailed and qualitative indicators are required.

ICTs Indicators

Adapted from Feek (ICTs evaluation indicators)
As ICTs increasingly become part of day-to-day development activities, and particularly where there are tangible benefits to be derived such as skills development, increased employment opportunities and more control over remittances, ICTs will become a part of the community’s livelihood system. Warren Feek has proposed a set of indicators that might address such a need and encourage the development community to focus on the benefits of the new technologies rather than the technologies per se.

Feek’s figure outlines the importance of creating platforms and spaces where all stakeholders in rural development can exchange their views, preferences and plans. This approach has yet to be developed and related to case studies and evaluations, but it could help to initiate a change in thinking. A key feature of this approach is its emphasis on building on existing good developmental practice and creating working alliances. This is important because if the poor are to make significant gains in the coming years they must make strategic partnerships to change the existing global power dynamics.

**ISSUE 4 – LOCAL CONTENT AND INFORMATION PROVISION**

The issue of content and in particular local content, is also mentioned in the ‘Magic Box’ paper:

“There is a lack of local participation in the creation of content and in “shaping” ICT tools and applications. Content is often created externally to the community, and sometimes even in foreign languages.”

In the last two years, content creation, content provision and capacity building to generate local content have been recognized as critically important for reducing digital divides. Local content is central to the notion of local appropriation and yet few of the case studies in the 2001 paper had a local content component within their programme design.

The conceptual diagram shown below gives us a useful framework within which to discuss content. The y-axis represents the place where content is produced, stretching between global production and local production. The x-axis shows where content is consumed. The two axes cross, producing four quarters.
The diagram represents the movement of content from local to global audiences and back again. To illustrate this, consider the following anecdote. A high school student in Kenya breaks the world record for a high jump. The first action is that teachers contact parents – local content being shared locally (quadrant A). The information is shared more and more locally, until a reporter posts the information to Reuters international news agency (quadrant B). It is then picked up by CNN and produced globally for global consumption (quadrant C). Someone in Australia sees the news and starts discussing it with their friends, perhaps comparing local athletes with the Kenyan jumper. The news is now being reproduced locally (quadrant D) and will include someone who has not even seen the broadcast news – in other words local production of global content for local consumption. Although illustrated as a circular movement of information, this is not a precise process as local content becomes global and then local again.

The issue for developing countries illustrated by the example above is that even though the news was ‘Kenyan’ in origin, the news agenda was set in the developed world. With four quarters to fill with content we need to ensure that there are ways to produce local content for local consumption. The following discussion considers this in more detail.

**Local information provided for local consumption – Quadrant A**

Quadrant A contains local content – information produced locally for local consumption which may or may not have global relevance. Experience has shown that the most effective systems are simple, and build on existing communication systems and data collection routines to provide specific information to specific users to inform decisions for which they are accountable.
Some examples are:

- agriculture – information about local markets, local ways of improving crop production;
- small business – local products, local market information;
- governance – local procedures, local tax information;
- health – local beliefs about feeding children, local medical practices;
- networking and advocacy – sharing information and mobilising collective action;
- security – emergency information, natural disasters, civil unrest.

The Internet has been said by some to have considerable potential to provide key information to poor and rural communities. However there are few examples of the technology doing this, mainly because the ‘Internet’ (ICTs connected to the World Wide Web) has not been appropriated by those communities. The reasons for this relate to infrastructure, costs, capacities and a lack of relevant content to stimulate participation. Nevertheless, an FAO/FOD/ODI study notes, “There are many good examples of innovative mechanisms to bridge the gap between the Internet and rural people through rural radio, high frequency radio links or village Internet booths, and rural service providers.”

In countries where broadcasting policy allows for narrowcast technologies, such as community radio, community video and public-access television, communities are able to convey their own messages and share information locally.

Community radio works well when it expresses good developmental processes such as participation and local governance and encourages local content. Much has already been documented about the local appropriation of community radio in Latin America and Africa. Latin America has arguably the most dynamic radio sector in the world, including religious organizations, universities, trade unions and indigenous groups. Some community radio stations simply use a loudspeaker to broadcast to the immediate neighbourhood. Two distinct trends have emerged in Africa in the Anglophone and Francophone communities. In Mali, where there is an abundance of community-owned radio, the radio station is the local point-to-point com-

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**Co-ordinating District-level relief responses**

In Uganda, an attack by the rebel Lord’s Resistance Army on communities in Soroti District caused widespread suffering among community members. The District authorities used cell phones to co-ordinate an effective humanitarian response with local community-based organizations (CBOs) and NGOs. This instant, two-way means of communication was much more efficient than the courier it had replaced, enabling the affected communities to receive timely and appropriate support.
munication technology, it is the de facto local telephone: announcing births, deaths, marriages and local pricing information as well as catalysing debate through informal listening groups.

FAO and its partners have been supporting community radio, through methodologies, training and materials. An FAO publication, ‘The One to Watch; Radio, New ICTs and Interactivity’, shows how integrating community radio and the Internet can help bridge the ‘last mile’ of connectivity and enhance the information supply chain. Newer forms of ICTs offer opportunities for convergence; when community radio is connected to the Internet, stations have a wider range of information sources to inform their programming and can reduce costs by networking to exchange content with other stations. Two case studies detailed later in this book, on Feminist Internet Radio Endeavour (FIRE) and on community radios and ICTs in Mexico, both provide evidence on the appropriation of rural radio by local communities and groups.

Video, traditionally in analogue format, has already demonstrated its usefulness as a participatory communication tool that can be appropriated by communities and groups. FAO is one of several agencies to have explored these possibilities, especially in Latin America. Almost every country has agencies that produce local language videos on development topics, although the most common form of local appropriation of video is for weddings and funerals. However video production has been relatively expensive and its use restricted by the fact that delivery in rural areas has often required a generator, television and player – and a 4WD vehicle to transport all these. This has now changed, and there is renewed interest in video as a common communication medium.

One of the longest running examples of local appropriation of video is by the Indian NGO, Video Sewa, which stands for Self-Employed Women’s Association. The INGO was set up in 1984 to produce videos on issues ranging from advocacy to health. The tapes are produced by women to empower other women to form cooperatives, gain new skills, learn about gender, religious or class-based oppression and understand how to access social services or other information.

Local content creation – are there tools yet to be appropriated?

Digital video is becoming a viable ICT development tool that could support regional and community television.

The high costs of programme production and licensing mean that television broadcasting does not lend itself to community and civil society appropriation in the same way as radio. Nevertheless urban ownership of televisions is high even in poor areas – over 56 percent in Delhi’s slums – and the rural poor are also beginning to acquire the box – about five percent of homes in rural Cambodia, the poorest country in Asia, have television. This means that television is a medium with considerable outreach potential.
Digital video has become much more accessible over the last two years, both in terms of convergence and convenience. Most personal computers can now edit digital video fairly easily and in-house video editing units have been set up in many international organizations and NGOs. This has two key advantages – it reduces costs by eliminating the need to hire professional camera crews and editors, and it allows the editorial process to be embedded with the development professionals rather than the video technical professionals.

Delivery has also been simplified in Asia and Latin America, though not yet in most of Africa, and can be done through battery-operated and relatively cheap digital players. The cost of the whole digital video unit set-up, including training can be less than the old cost of one video produced by an external team. The comparative advantages of the new digital technology over the old analogue system are summarized in the cartoon showing changes in empowerment in digital video below.

**Using digital video for development**

1. The community can learn to use the camera to record discussions and events. A facilitator can help people articulate their opinions.

2. Editing is done on a PC or laptop computer in a nearby organisation. The community must check and verify the edited version. Translations are also made close to the community.

3. The output is a digital video which can be copied without reducing the quality of the production.

4. The video can be played back to the communities using a car battery operated PC, laptop or TV. Facilitators can use the video to kick-start discussions.

5. The communities’ views can be recorded and sent to local and national decision makers.
Digital video is now used for formal training, adult education – especially for the illiterate or semi-literate – for edutainment and for advocacy. Educational institutes such as the Kenyan NGO, the Christian Industrial Training Institute, has been using video to teach light engineering skills, and the Ugandan NGO Kulika uses the technology for agricultural training. The Health Foundation of Ghana has trained staff from six agencies, including the national health service, to make health videos for use by health visitors and clinics. Digital video is still in its infancy but is an exciting medium to watch out for in the coming years.

Local information provided for global consumption – Quadrant B

The Internet, by its nature, has the potential to make local information accessible across the world. This aspect has been exploited, with varying degrees of success, by groups in the developing world wishing to persuade businesses to buy their produce, products and services or to advocate for social change and campaign on particular issues.

Have ICTs given a global voice to the poor?

The ‘Magic Box’ paper presents various examples of ICTs that support the ongoing work of civil society. NGOs have been able to strengthen the communication between offices in the developed countries and their counterparts in developing countries. This has increased efficiencies in the “supply chain” regarding the formation and implementation of developmental activities. It has also allowed the agencies in poor countries to articulate their views to donors and partners in developed countries. This has made the two-way flow of communication much better than it was ten years ago.

There are also opportunities for advocacy across the spectrum of international and local levels. For example Revistazo, a case study from the Sustainable ICTs, Web site, clearly identifies how the Internet was used to fight local corruption and led to a corrupt supreme court judge not getting the appointment he expected. Advocacy is often about a supply chain of information, and the global changes in ICTs have assisted this quite considerably. They have brought a cost-effective mechanisms for presenting information to a broad audience and increasing transparency. At the international level, people can now send e-mails to the news media, and directly to the decision makers of the world. The public in wealthy countries can be informed through ICTs and campaigns can include the voices of the poor. The NGO Tearfund has reported the use of a satellite phone to connect a Zambian woman farmer to the British Chancellor of the Exchequer in 1999. She spoke to the Chancellor about the impact of Zambia’s national debt on the life of her family and to ask for debt alleviation. This was part of a global campaign on debt relief.
There has been an appropriation of ICTs by civil society to give a louder voice to developing countries. There is also general acceptance among the development community that ICTs can strengthen networks for social change.

**Global information provided for Global consumption – Quadrant C**

This quadrant is the best known, and is dominated by the global media corporations whose satellite television and radio broadcasts reach into the homes and workplaces of a staggering number of developing countries. These are essentially top-down media, whoever controls the technology (the channel) also controls the message (content). Global content can be useful in areas of education and can help build networks for social change. The most popular examples of global content are in the news and entertainment sectors.

**Global information provided for local consumption – Quadrant D**

Among other types of information Quadrant D is best illustrated by considering health materials: global best practice information that needs to be contextualized for local consumption. The Health Foundation of Ghana,\textsuperscript{38} for example, takes global health information from the Internet (and other sources), and adapts it for the Ghana health community. The Foundation’s journal, which is available online and in hard copy, contains articles that present health information relevant to Ghana, in a style, language and format appropriate to the local community. Although Ghana does not need to adapt the information to local languages, other agencies, such as HEED in Bangladesh,\textsuperscript{39} adapt and translate online articles for local dissemination.

To be effective, we see that external content has to go through a series of iterations and adaptations before it is relevant to local audiences. There is therefore a growing need to develop the capacity for locally based professionals to ‘pull down’ and transform global content for local consumption.

**CONCLUSION**

In 2001 the paper ‘Discovering the Magic Box’ called for further investigation of local appropriation and provided four guiding principles for local appropriation of ICTs by communities and groups. Two years on, we have revisited those principles and find them still relevant. In addition new case studies, field research and analytical tools are beginning to emerge to help development professionals, communities and groups foster local appropriation of ICTs.

We return to the four guiding principles identified as key to successful local appropriation of ICTs:
1. The need for empirical evidence or analysis of actual experiences of applying ICTs locally and their impact on the lives of the poor.

The projects quoted in the ‘Magic Box’ paper and followed up as a part of this research were at least two years old – even seven years in the case of tele-centres. Yet they yielded little evaluative data, a serious omission that was noted two years ago and still needs to be addressed.

We also found that those initiatives that demonstrated local appropriation receive scant international visibility, partly because where local communities appropriate new technologies, they do not see anything ‘newsworthy’ in their actions – lending a neighbour your mobile phone is hardly front-page news! We are also beginning to see field-based research which analysed the impact of ICTs on the lives of poor people. The telecoms industry has grown exponentially and research shows clearly that people are appropriating telecoms without direct stimulation or subsidy from an external development agency. Though there is also evidence that some degree of subsidization has helped kick-start the purchase of mobile phones for collective use. Despite an increase in case studies there is still a need for more empirical evidence to demonstrate impact and understand more about how communities and groups make use of ICTs.

2. The process and approach for development interventions is key to appropriate development activity – and has in the recent past been overlooked in many ICT-related activities.

Two years ago the ‘Magic Box’ paper noted that there were few community driven and locally appropriated ICT initiatives. This is slowly changing and a significant element has been the development of the mobile phone as a relatively cheap and powerful tool that has enabled communities, even in remote areas, to spontaneously and locally appropriate it for use.

We learn that ICT programme design must reflect an understanding of the different ways in which individuals and groups learn, communicate and use information; unless they incorporate this understanding, programmes are likely to fail. ICTs need to be integrated with local communication networks so that local people can dialogue with the technologies, interact with each other and create or modify content. The ‘Magic Box’ paper made a call for those involved in ICTs to learn from the wider aid and development sector, and this call remains in place.

3. There needs to be a focus on the benefits of the new technologies rather than the quantity of technologies available.

The ‘Magic Box’ paper identified a tendency to focus more on the technology available than the real needs of communities. Successful examples of local appropriation are those in which ICTs are embedded in the wider liveli-
hood systems and goals of communities and groups and where they are employed to strengthen existing communication systems and address communication needs, whether for social or financial reasons. Similarly ICTs are being used to advance social change in particular, strengthening activities for networking and advocacy

4. Access to ICTs must be accompanied by the strategic creation of content for it to be locally appropriated and affect development.

The lack of local participation in the creation of content is recognized as critically important for reducing digital divides. Effective systems for local content creation build on existing and trusted communication systems and methods, for collecting and sharing information. There are established community media such as radio, which can be enhanced through connection to the Internet and at the same time there are new technologies, such as digital video, that are yet to be fully appropriated for the production of local content.

To be effective, we see that external content has to go through a series of iterations and adaptations before it is relevant to local audiences. There is therefore a growing need to develop the capacity for locally based professionals to ‘pull down’ and transform global content for local consumption.

Overall, this chapter highlights the fact that communities are already appropriating ICTs for their needs. There is also general acceptance among the development community that ICTs can strengthen networks for social change. The responsibility is now on development agencies to make these technologies available and to learn from local communities how to provide the right mechanisms for local appropriation to take place.

The remaining chapters in this book provide us with further insights into local appropriation of ICTs by communities and groups documented through three case studies.
FOOTNOTES AND REFERENCES


2 ICTs can be defined as a range of electronic technologies which, when converged in new configurations, are flexible, adaptable, enabling and capable of transforming organizations and redefining social relations. ICTs combine technical, functional, organizational and human characteristics that influence communication processes and information content. ICTs can include the Internet, e-mail, PCs, PDAs, mobile phones, digital cameras, networks, databases, portals and software.


4 Sabine I. Michiels and L. Van Crowder op.cit.

5 World Bank infoDev http://www.infodev.org/

6 Acacia Initiative http://web.idrc.ca/ev.php!ID=5895_201!ID2=DO_TOPIC


9 ICTs for Sustainable Livelihoods’ (1999) Clare O’Farrell, Pat Norrish and Nigel Scott http://www.rdg.ac.uk/irdd or http://www.rdg.ac.uk/AcaDepts/ea/AERDD/ICTs.home.htm

10 http://archive.idrc.ca/pan/evaluation.html
Innovative Demand Models for Telecommunications Services: Final Technical Report
Kevin McKemey, Nigel Scott, David Souter, T Alfullo, Richard Kibombo and O Sakyi-Dawson, DFID R8069 forthcoming

Some ICT-and-development-related case studies can be found on the following Web sites:
FAO/DFIF/ODI Web site
Bridges
http://www.bridges.org
Digital Opportunity Channel
http://www.digitalopportunity.org/article/frontpage/296/1061
The Information for Development Program
http://www.infodev.org
International Institute for Communication and Development
http://www.iicd.org
The Global Knowledge Partnership
http://www.globalknowledge.org

http://www.sustainableicts.org/execsumm.htm

For the DFID definition of livelihoods and a livelihoods approach to development, please see:
http://www.livelihoods.org/SLdefn.html

A collaborative study by FAO, The Department of International Development, UK [DFID] and the Overseas Development Institute, UK [ODI]

Gyandoot
http://gyandoot.nic.in/
and http://www.sustainableicts.org/GYAND.htm

Telecentres for Urban Youth Final Draft Report
Big World, unpublished, due late 2003
http://www.big-world.org/home/

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Francisco J. Proenza (2002)
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   Simon Batchelor and Mike Webb, DFID, 2992
   http://www.big-world.org/projects/141.asp

21 The Reality of E-Commerce with Developing Countries
   John Humphrey, Robin Mansell, Daniel Pare and Hubert Schmitz (2003)

22 Goal 8, Target 18: ‘In cooperation with the private sector, make available the benefits of new technologies, especially information and communications’
   http://www.developmentgoals.org/Partnership.htm#target18

23 McKemey et al
   op. cit.


25 Fantsuam Foundation
   http://www.fantsuam.com/

26 Virtual Change: Criteria and Indicators for assessing the Impact of Information Communication Technologies on Development Trends (draft), Warren Feek
   FAO, forthcoming 2004

27 op. cit.

28 Collecting and propagating local development content: Digital opportunities, digital options
   Peter Ballentyne, IICD, 2002
   http://www.iicd.org/base/ic_show_news?sc=107&sc=107&sc=107&id=1878

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   http://www.coww.comunica.org/1-2-watch/
31 Listening to farmers: Communication for participation and change in Latin America, Silvia Balit, FAO, 1998

32 Video SEWA
   http://www.video.sewa.org

33 Christian Industrial Training Institute
   http://www.kciti.edu/

34 Kulika
   http://www.kulika.org/

35 Interim report to IICD on Ghana Health and Digital Media Project,
   Lynda Arthur, DFID/DGIS (unpublished), 2003

36 Revistazo
   http://www.revistazo.com/
   see also the report on the NGO:
   http://www.sustainableicts.org/REVISTAZO.htm

37 Tearfund
   http://www.tearfund.org/homepage/content.asp

38 Health Foundation of Ghana
   http://www.hfghana.org/

39 Health, Education and Economic Development (HEED) Bangladesh
   http://www.heedbangladesh.org