

IMPACT ASSESSMENT OF APPROPRIATE AND INNOVATIVE TECHNOLOGIES IN ENTERPRISE DEVELOPMENT

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Appendix: Executive Summary of Draft Report "Enterprise Development and ICTs: Research on Innovation and Best Practice"

SUMMARY

The impact of innovative and appropriate technologies on the livelihoods of the poor and the disadvantaged in developing countries has been the concern of DFID for some time. Modern Information and Communication Technologies (ICTs) have the potential to play a substantial role in poverty reduction, but further knowledge and work on realising benefits and understanding the impact of ICTs is needed.

This paper looks at examples of both types of intervention and their potential impact on poverty. It presents several methodologies for impact assessment and assesses their relevance and usefulness to ICT based projects, particularly in the field of enterprise development.

- Section 1 of the paper introduces the way ICTs can be linked to poverty alleviation and enterprise development
- Section 2 addresses the issues and needs for impact assessment within ICT based projects
- Section 3 outlines some approaches to impact assessment
- Section 4 gives practical advice as to how to design and implement impact evaluations on ICT based projects
- Section 5 concludes with the thoughts that much more impact assessment is needed in the field of ICTs, both qualitative, and quantitative. The cross-

cutting nature of ICTs should also be more strongly emphasised, leading to integration within other enterprise development projects

1. Introduction

Committed to reducing the proportion of people living below a dollar a day from 30% to 15%, DFID places the livelihoods of poor people at the centre of its strategy, and places its trust to find solutions in the poor themselves and in the private sector. As primary stakeholders in this effort, poor women and men can develop technology and uses of technology for their own benefit, drawing on their own experience. Modern Information and Communications Technologies (ICTs) have the potential to play a substantial role in poverty reduction, but so far they have only been available to the minority, and their potential is barely beginning to be realised.

Information and Communications Technologies (ICTs), such as the world wide web, e-mail, telephones, fibre optics and satellites are revolutionising the way in which societies interact, conduct their businesses, compete in international markets and set their economic and human development agendas. ICTs can enable societies to produce, access, adapt and apply greater amounts of information, more rapidly and at reduced costs, and offer enormous opportunities for enhancing business productivity and economic activity. ICTs can also contribute towards strengthening democracy, increasing social participation, competing in the global market place and removing barriers to modernisation, making poor populations fuller agents in the sustainable developmental process. However, with the rapid introduction of these technologies in the western world, the gap between rich and poor nations is widening.

Recognising the potentials of ICTs to improve poor people's livelihoods, DFID recently launched the 'Bridging the Digital Divide' programme with an overarching aim of achieving the international development targets. The programme will address key barriers and provide opportunities for people to access these technologies. Such activity will help achieve DFID's development targets.

The opportunities for the use of ICTs in development are vast, but so also are the barriers. There is some scepticism among policy-makers and donors of the relevance of these technologies to the lives of the poor. Investing in ICTs may mean investing less in other development priorities such as water, sanitation, health, education and so on. There is a clear need to demonstrate the usefulness of ICTs for development and to show that these technologies do complement the efforts of other development sectors in alleviating poverty and developing sustainable communities. In the context of Enterprise Development four functional areas for ICTs and enterprise operations can be identified:

- ICTs as an enterprise output
- ICTs as a primary processing technology
- Other ICT-related support activities
- ICTs as a secondary processing technology.

Appendix A contains the Executive Summary of a paper recently produced for DFID on the issues of "Enterprise Development and ICTs: Research on innovation and best Practice", showing how ICTs can impact on enterprise development.

Impact assessment exercises are visible in other ED sectors, but few documented cases exist in ICTs because the sector itself is new. A recent survey of donor ICT initiatives and programmes (OECD, 2001) identifies over one hundred bilateral, multilateral, regional, foundations and other non-profit making donors that are currently funding ICT-related projects concerning developing countries. The World Bank group has been estimated to fund between \$1 billion and \$2 billion in ICTs per year; more recently the Bank has indicated plans to spend \$1 billion on ICTs in the Americas alone in the next three years. InfoDevs (the Information for Development programme hosted by the World Bank) budget has been of the order of \$10 to 15 million per year, yet there is little serious impartial and representative research on the impact of ICTs on enterprise development in developing countries.

1.1 ICTs for poverty alleviation and enterprise development

The introduction of ICTs in mainstream societies is revolutionising the way in which societies interact, conduct their businesses, compete in the international market, set their economic and human development agendas, and access and participate in promotion of a popular democratic culture.

ICTs have become the driving force for a new business and economic paradigm with far reaching effects for all types of industries and for the competitive position of developing countries. However, the rate of adoption of ICTs differs from country to country, and in an individual country, from firm to firm. Because of their potential impacts on the productivity and competitiveness of firms, ICTs are important to all types of enterprises, including micro, small and medium scale enterprises. As the driving forces for enterprises' capacities to access, adapt and apply information and knowledge in their production and marketing, ICTs offer enormous opportunities for transfer and acquisition of skills, technical knowledge and business-related information.

Enterprises function on the basis of four tangible resources, namely money, people, materials and technology, and one intangible resource, information. Enterprises require information and knowledge about four main aspects of their operation: supply, demand, the operating environment and internal processes. Information is crucial to the effective management of any enterprise, for without quality information, bad decisions can be made and learning may not take place. Information poverty in small enterprises results in wrong decisions and entrepreneurs' inability to learn from their wrong decisions. This in turn results in the loss of valuable resources such as money, time, income and business relationships. ICTs can change this scenario by enabling small entrepreneurs to gain access to timely and quality information, and thus empower them to take informed decisions in their business.

ICTs have the potential to empower and provide greater opportunity for individuals, groups and communities, regardless of their age, sex, skin colour, race, creed, class, or position in society, and thus aid in the development of human rights. Poverty elimination is about providing greater empowerment, opportunity and security, and ICTs can directly improve the access people have to information, knowledge, and political and cultural participation.

1.2 Examples of ICT applications in Enterprise Development and poverty reduction

1.2.1 HoneyBee Network in India

Honey Bee network was established in Ahmedabad with a view to collating information on the ongoing grass-root level knowledge initiatives in India. The network comprising of appropriate technology experts in India now has a database of over 10000 records with information on rural appropriate and useful technologies in an Indian setting. This network of grassroots innovators demonstrates how technological and institutional innovations developed by indigenous and local communities can provide a new way of thinking about issues such as conservation of diversity, generation of sustainable livelihoods and natural resources management, and augmenting income generation and livelihood strategies. As a model of poverty alleviation and conservation of natural resources, this programme aims at capitalising on poor people's knowledge, in many cases local innovations that have the potential to lead to inventions of modern science. This programme demonstrates the applications of ICTs in local people's lives by encouraging remote access online multimedia databases of technology innovations through local touch screens for people in remote corners of rural India.

1.2.2 Village pay phones and poverty reduction in Bangladesh

In Bangladesh, the relatively wealthy sections of villages have traditionally owned, managed and led the introduction of modern technologies. Such patterns of ownership have allegedly resulted in inequitable distribution of income and wealth. The Grameen Bank's style of managing mobile phones in villages has enhanced the technology's broad-based, pro-poor orientation. The very possibility of relatively poor people owning and accessing modern information technologies creates opportunities for reducing poverty and restoring a more equitable distribution. The strong institutional and organisational capabilities of poor people's organisations through this programme certainly facilitate efforts to make the poor the managers of technology.

1.2.3. InfoDes in Peru

In Peru, the central co-ordinating unit of the InfoDes project in Cajamarca hosts a customised database containing information about a range of locally appropriate technologies and on trade and business issues. Local entrepreneurs and people coming to market are able to drop in to search these databases for information with help from trained staff. Users of this facility believe that InfoDes demonstrates how the information potential of the Internet can really improve their livelihoods. As most Cajamarcans live in far flung rural communities remote rural access points have been linked to the centre, and a mobile information unit with video links and internet access tours villages to introduce the service. It is through this unit that many poor women and men have got their first taste of modern ICTs and discovered how they can be used to improve their livelihoods.

1.2.4 InfoBus in Zimbabwe

An information systems and needs study conducted by ITDG among small-scale producers and manufacturers of Zimbabwe in early 2000 led to the piloting of two information resource centres, one in a peri-urban locality and the other in a rural location in Zimbabwe. Located in the peri-urban Willowdale area of Harare, the first resource centre, a “BU\$INE\$\$ BU\$” of ITDG aims at identifying and meeting the information needs of small-scale entrepreneurs and manufacturers. Operational since September 2000, this fully mobile BU\$ has facilities such as TV, video, fax, typing, photocopying, telephones, and computers for emailing and Internet browsing. In addition, this BU\$ has a small library containing a database on Appropriate Technology, technical briefs, publications on how to start, run and manage small businesses, and databases and directories of micro-finance institutions.

2. Assessing the impact of ICTs in development: issues and needs

2.1 The effects of ICTs

Recent experiments show that ICTs can have very positive impacts among the poor.

The Grameen Bank's Village pay phones programme, for instance, has shown an average net profit of 277 takas (£3.60) a week per phone for selling phone services to villagers. Further, the innovative usage of the mobile phone resulted in alternative means of communication, empowerment of Muslim women and the mobility of poor people in the village. ICTs are bringing market transparency and relief from life threatening situations at local levels. The InfoVillage programme of M S Swaminathan Foundation in Pondicherry is able to deliver daily images obtained from a web site run by the US Navy of the predicted wave conditions in the Bay of Bengal at Veerampattinam. The villagers who are fisher folk are able to learn the sea conditions and decide whether or not to go fishing on a given day. This information, that is so crucial for their lives, is transmitted verbally across a public address system, from loud speakers, to these fishermen as they prepare their boats in the early morning.

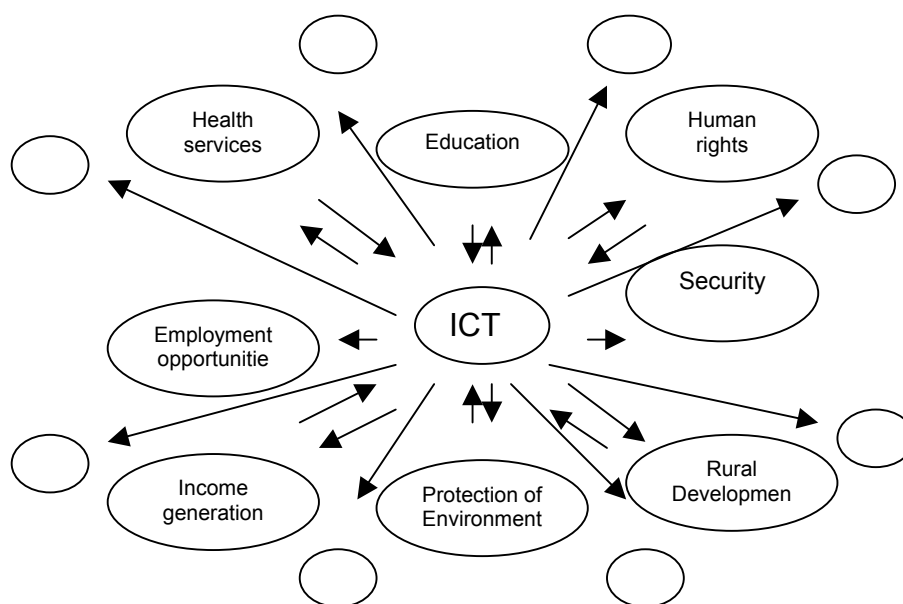
The impact of ICTs is witnessed in many aspects of the day-to-day lives of the poor.

- ICTs can have a major role in reducing the impact of natural disasters on the poor in low-income countries. The WorldBank's hazard management programme in high risk areas of Andhra Pradesh, India involves ICT components in cyclone warning, communication and response, awareness raising, education and community involvement in hazard reduction activities.
- ICTs can improve the efficiency of government through public finance processes by reducing opportunities for corruption. The Automated Systems for Customs Data (Asycuda), developed by UNCTAD, is now used by over 70 developing countries to manage tariff collection and reduce frontier corruption. The system speeds up goods movement, reduces transport expenses, and only costs US\$ 2 million to install. (Kenny *et al*, 2000).
- Use of rural radio and teleconferencing education has shown tremendous impact on the lives of children. In Mexico, over 700,000 secondary-school students in remote villages now have access to the *Telesecundaria* program, which provides televised classes and a comprehensive curriculum through closed-circuit television, satellite transmissions, and teleconferencing between students and teachers. Studies have found that the program is only 16 percent more expensive per pupil served than

normal urban secondary schools, while students benefit from much smaller student-to-teacher ratios. Rural students enter the program with substantially lower mathematics and language test scores than their counterparts at traditional urban schools, but by graduation, they have equalled their math scores and cut the language-score deficit in half. (Source: de Moura and others 1999).

- Further, ICTs can play an important role in preserving and providing access to cultural resources. ICTs have also played an important role in preserving and identifying threatened or marginalized cultural artefacts and traditions. Visitors to <http://www.maori.culture.co.nz/> can read histories of the Maori people, view images of cultural artefacts and the unique tattoo patterns common among Maori men, obtain Maori recipes, and order cultural products from an online shop.

The role of ICTs in people's lives go beyond the issue of access and infrastructure as these tools have become important in improving health services, in environmental monitoring, bridging the gaps of the rich and the poor in various countries, in empowering women, and so on.



ICTs and their linkages in development

2.2 The constraints

Although there are very many positive effects, there are also many constraints faced by governments, institutions and individuals seeking to introduce these tools for enhancing livelihood opportunities. Constraints such as policy failures, lack of private financing, lack of quality content, poverty and illiteracy, poor infrastructure and so on make it very difficult to access them or to use

them as effectively as desired. It is widely acknowledged that the influence of these technologies may affect the way in which enterprises operate, make-decisions, produce or exchange tangible goods and services and create opportunities for developing and exchanging intangible goods and services such as artistic creation, learning, knowledge sharing. However, in many countries the policy environment is not conducive enough to implement these services effectively. Problems exist with anti-competitive conduct, abuses of dominance, anti-competitive agreements and structural changes, and legislation concerning licensing, concessioning, tax and the interface between state owned and private concerns. (Schwarz 2000) Don Richardson's study revealed that in the Northwest region of Ghana the political criteria dictated the placement of lines and payphones resulting in lower telephone use and revenues than had been initially predicted (Richardson, 1998).

2.3 The concern and the need for evaluation

Many decision-makers remain to be convinced about the contribution these technologies can make to income generation and sustainable development. This concern is shared by informed promoters of ICTs, both private and not-for-profit organisations, who may feel that these technologies are critical to developing modern economies and a key to growth and success of societies, but understand the limitations of affordability and accessibility. Others who are struggling with the nature of this new phenomenon, express their concerns at the effects and potential consequences these technologies can have among the poor and the disadvantaged.

Unless we are able to show that ICTs make a difference and reach out to more poor people or deliver better services to larger segments of society, the potential of ICTs and information management will remain just that.

Statement by the Administrative Committee on Co-ordination, for the UN Inter-Agency project on Universal Access to Basic Communication and Information Services.

The rapid growth of numbers of people world-wide using ICTs is a simple quantifiable indicator of their impact. The growing number of web sites and email account holders further indicates that this technology is valued. While they are still at a very early stage, a number of e-commerce services in developing countries reveal that the nature of transactions of goods and services could soon start to have a significant impact on industries, especially small-scale enterprises.

Since the experience of the users of ICTs is relatively new, it becomes very difficult for them to distance themselves from these technologies and to study the impact of ICTs in their day-to-day lives. Impact studies are often based on a simplistic comparison between the pre- and the post situations of any

intervention. The 'before-after' approach can be effective only when impact assessment methodologies are set with correct objectives. Otherwise the approach will simply tell us what changes occurred due to the introduction of ICTs, but will not tell us how they have occurred and why. These reasons are very important if the impact assessment is to inform policy formulation and decision making surrounding new projects involving ICTs. Thorough impact studies will help in devising new strategies for enhancing the impact of ICTs in reducing poverty.

The need to evaluate the impact of ICTs in enterprise development can be broadly classified into the following areas.

i) At the **national and international level**, there is a growing concern and need for demonstrating the usefulness of these technologies so that policy-makers can frame policies that encourage utilisation of ICTs in developmental efforts. This should result in improved connectivity, reduced costs and in increased access to ICTs by all sections of the population.

ii) At the **managerial level**, NGOs, medium and small-scale enterprises (MSMEs) and IT organisations are very keen to assess the acceptance level of ICTs among the users so that they can develop a better understanding of the business dimensions of these technologies.. The need for user-level studies points to the need to look at existing users and the factors that affect the way in which poor people and small-scale enterprises access, adapt, assess, analyse and apply these technologies in their businesses. Issues such as human capacity, operational costs, training needs, skilled manpower, and applicable content influence the extent to which these technologies can be applied in enterprises.

iii) At the **user level**, the need for assessing the impact is established by the fact that ICTs do not just affect the enterprises, but also the external agencies and communities around them.

iv) **Designers of information systems** need to have a thorough understanding of user behaviour to ensure that the technologies and information systems are appropriate to the context in which they are to be used.

Any approach to analysing the use of ICTs must start with overall development goals and an understanding of the role of information to meet those goals, and only then go on to see how ICTs and other technologies might help.

The following questions have been formulated as the basis of an impact assessment of ICTs and their role in enhancing livelihood opportunities and enterprise development among the poor women and men.

- How can poor people's knowledge and concerns inform global decision-making?

- How can global knowledge and resources support poor people's grassroots initiatives, social and economic entrepreneurship?
- How can poor communities connect and form alliances that support co-operation among them and enable knowledge sharing and sustainable enterprise development?
- How can development agencies, the private sector, and governments learn more about poor communities needs and concerns through use of ICTs?

Answers to these questions will address the above-mentioned four types of concerns expressed by organisations that are working with the poor.

2.4 The impact assessment of ICT projects

In the broadest sense, impact assessment is the process of identifying the anticipated or actual impacts of a development intervention, on those social, economic and environmental factors which the intervention is designed to affect.

Impact assessment is the systematic analysis of lasting or significant changes - positive or negative, intended or not - in people's lives brought about by a given action or series of actions

However, most assessments focus excessively on quantitative issues: how many people accessed, what technologies are used, how much cash, how much increased production, or how many jobs are generated, rather than a broad range of human and livelihood issues. Project impact assessments tend to look inward on internal management issues, focussing on existing project objectives, through planned activities. To gain a picture of the broader development and poverty reduction impact of projects, assessments must take a longer-term view, looking at both intended and unintended consequences of projects across a variety of livelihood concerns. They should also look beyond the target beneficiaries to consider all stakeholders (Ashley, 2000).

When it comes to an ICT-enabled enterprise activity, the assessment cannot be done in isolation from the environment in which the ICT services are provided. It is quite possible for external evaluators to confine the focus just to the technological issues. Impact, by definition involves 'demonstrating the social, cultural, economic, political, environmental and other benefits that are associated with the consequences of making effective use of information'. Unfortunately, the role of ICT is not well understood in many situations and the users as well as the implementers often lack the necessary skills to access, adapt, apply and analyse their use. Further, information supplied through these technological tools may not accrue at its immediate point of use but at some future time.

2.5 Existing models and the gap

i) A study among small businesses in Shanghai, China used the **linear structural relations model (LISREL)** to determine the impact of information, relative to other factors on development of the small manufacturing business sectors. This study proved that it was possible to quantitatively measure the impact of information on development by analysing casual hypothesis on the basis of non-experimental data using the LISREL software (Vaughan, 1997). In this model, latent variables are formulated in terms of theoretical or hypothetical concepts. Variables such as information use, business environment, success and so on are examples of latent variables that are not directly measurable. Observed variables are the ones that are directly measurable or observable such as profit, growth, location and so on. The model can help in identifying and analysing the relationship between the latent and observed variables. However, the model lacks a holistic approach and tends to ignore a number of livelihood issues.

ii) International Development Research Centre (IDRC) conducted a study to test the role of ICTs in development by extracting lessons from their project experiences. Using the **Lanfranco framework**, this study helped IDRC to focus on the current as well as potential future roles of ICTs in development (Graham, 1997). The Lanfranco framework helped to see ICTs as

- a) a virtual workspace within the project, which could range from stand-alone computers for word-processing to an internal local area network;
- b) a communications corridor for the project to access remote sites and incorporate remote resources into the local workspace;
- c) a communications corridor for remote sites to access the project. The study established the fact that within virtual workspaces, email was used most often followed by digital images.

This study focused less on people-centred issues and more upon the use of ICTs in workspaces.

iii) A recent guidebook published by IDRC recommends a **framework for evaluation for assessing and evaluating the impact of community telecentres** in Africa. Community telecentres offer services such as telephone, fax, email, Internet, telemedicine, distance education news distribution and telecommuting. This document provides guidelines to researchers who try to find answers to the questions,

- Do telecentres truly respond to the communication and information needs of communities they are intended to serve?
- What impact do they have on social equity and economic development?

Scoping of the evaluation framework in this method includes the following tasks: stakeholder analysis; problem analysis; objectives' analysis; alternatives' analysis; evaluation matrix; external factors; and, performance indicators.

iv) There are a number of other initiatives in recent years that have applied different assessment methodologies and frameworks. However, most of these assessments relied heavily upon questionnaires and semi-directive interviews, often combined. While some monitored the access and use of ICTs on a continuous basis, most of these assessments lacked co-ordination between information providers and users. There have been only a few attempts to see the relevance of ICTs in enterprise development either as enterprises in their own right or as tools that assist in enterprise development.

The ICT framework tested on five Canadian International Development Agency (CIDA) activities more or less followed this approach. The four main characteristics of ICTs - information, borderless connections, timeliness and improving costs and benefits - formed the basis for the conceptual framework. It was assumed that ICTs could directly contribute to the formation of cross-border communities and groups, timely co-ordination and improved information access at increasingly low costs. ICTs could thus advance the efforts toward sustainable development indirectly by supporting co-ordinated and informed groups of people working to improve human relations (CIDA, 1997). The framework yielded valuable information on the influence of ICTs in social enterprises development.

v) Michel Menou's work in 1993 has clearly inspired the design of impact assessment techniques in the recent past. The key features of **Menou's framework** can be summarised as follows (Menou, 1993):

- A thorough knowledge of the community observed and understanding of its key development problems, in its own definition, as a starting point;
- The involvement of representatives of all categories of stakeholders in a bottom-up participatory approach for the design and conduct of the study and the appraisal of its results;
- The inclusion of all forms and channels of information in the investigation;
- The inclusion of all the factors at play in the development issues and not only the information-related ones;
- A focus on the changes in the development issues and not on the use of information; and
- A longitudinal approach enabling at least the validation of the initial observation.

This framework can be seen in the light of livelihoods and human rights issues applying a range of conventional, participatory and SL approaches to impact assessment. However, most of the studies adapting the methodologies from this framework failed to focus on livelihood, but rather focussed heavily upon technological issues or the relationships between the information supplied and the end product itself.

3. Approaches to impact assessment of ICTs

3.1 Conventional approaches

Conventional approaches to impact assessment focus on whether a project has met its stated objectives and contributed to the achievement of the overall project goals. This approach uses criteria of project relevance, efficiency, effectiveness, impact and sustainability and looks at both intended and unintended impact. Most of the ICT projects tend to follow this method. While this method can be a cost-effective method, the following demerits often make an evaluation a ceremonial exercise (Baker, 2000).

FACTOR	EFFECT
Conventional approaches have been more donor-focused and donor driven. The donor is the key client, providing both financial support and defining the terms of references for the evaluation	Donor becomes the key client. The evaluation criteria is given by the donor which makes it impossible for the beneficiaries to participate. There is no attempt made to learn the lessons from the project
More often than not, the evaluation is carried out more to fulfil a management and accountability requirement than to respond to project needs.	The evaluation becomes more of a ceremonial exercise. There is no chance for the project to reflect upon the performance
An outside expert is hired or contracted out to conduct the evaluation, and in some cases the project staff who are very close to the programme conduct some user interviews and fulfil the obligation to involve local project personnel	The expert more often than not does not have a clue about the cultural, economic and political settings of the beneficiaries. There is a pre-supposition that the programme was successful.
Data is collected to determine whether the project met the overall goals and the objectives, and a report is produced.	An attempt is made to invent success stories and evidences to prove the usefulness of the project. Evaluation does not necessarily find the project as a failure even in reality if it was so.
In most cases, stakeholders or beneficiaries play a very passive role, providing information but not participating in the evaluation itself.	There is hardly any communication between the donor and the beneficiary. The exercise is a linear one, leaving a two-way interaction just between the donor and the evaluator.

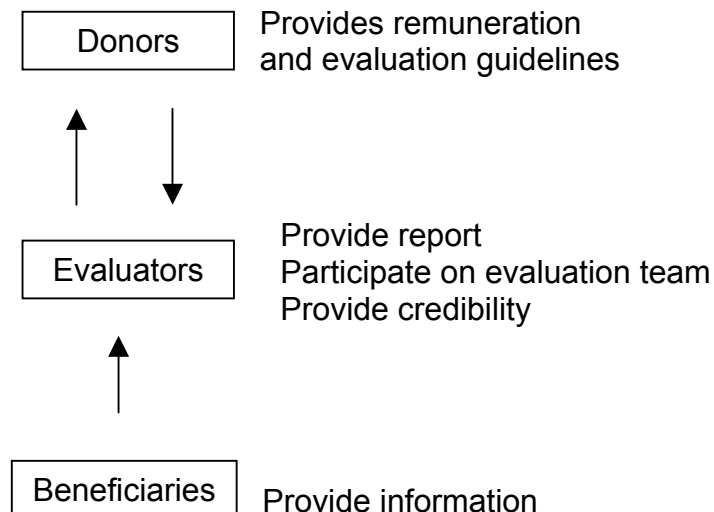
A case-study

Argentina's TRABAJAR programme that aims to reduce poverty by simultaneously generating employment activities for the poor and improving social infrastructure in poor communities, conducted an impact evaluation based on the conventional methods. The aim was to determine whether or not the programme was achieving its policy goals and indicate areas in which the programme required reform in order to maximise its effectiveness. The evaluation consisted of a number of separate studies that assessed a) the net income gains that accrued to programme participants, b) the allocation of programme resources across regions, c) the quality of the infrastructure projects financed, and d) the role of the community and NGOs in project outcome.

The evaluation design included an array of components, from household survey data to assess the income gains, and cost-benefit analysis for a sub sample of infrastructure projects to assess social impacts, designed to provide feedback on project implementation.

The evaluation design illustrated an effective mix of evaluation tools and techniques such as survey data analysis, site visits, and social assessments. These components were designed explicitly with the project cycle in mind, timed to generate results during project preparation stages so that results could effectively be used to inform policy.

This type of evaluation, if not administered as the example cited, can become a one-way linear process, with no or little feedback to the project. In an ICT project, project recipients and all stakeholders should be involved in understanding the internal dynamics of their project, its successes and failures, and in proposing solutions for overcoming the obstacles and utilising the ICTs in context. The growth of the ICT sector is very fast in that there are new solutions found everyday to the practical problems faced on the ground. The factors that affect the projects are often centred around the user behaviour to the technology which may vary from place to place according to the social setting. This makes it difficult for any evaluator to understand these complexities in the social context. Hence, it is important to mix a number of evaluation tools and techniques that suit the context, similar to that designed for the TRABAJAR project.



Donor-focussed conventional evaluations

3.2 Participatory approaches

Participatory evaluation is people-centred. Project stakeholders and beneficiaries are the key actors of the evaluation process and not the mere objects of the evaluation. As a reflective and an action-oriented approach, participatory evaluation seeks to build capacity by:

- providing stakeholders and beneficiaries with opportunity to reflect on a project's progress and obstacles;
- generating knowledge from the lessons learned that leads to corrective action and improvements; and,
- providing beneficiaries and stakeholders with tools to transform their environment

A case-study

Participatory self-evaluation of farmer-to-farmer projects in Mexico, the Programme for Strengthening the Regional Capacity for Evaluation of Rural Poverty Alleviation Projects in Latin America and the Caribbean (PREVAL), conducted an evaluation study using participatory approaches in 1999. This study is an example of an evaluation methodology based on the concept of Social Audit, that assesses the social impact and ethical behaviour of an organisation or of a project in relation to its objectives and those of the people involved. The Social Audit was based on the creation of indicators proposed by the stakeholders and the assessment of social, as well as economic and agroecological impacts, and the sustainability of the project. It took into account different perspectives represented by the indicators and by information from other sources.

The study was based on three approaches to evaluation, within the conceptual framework of the Social Audit:

- Conventional social science research, using methods from ethnographic work (semi-structured interviews, oral histories);
- Participatory Rural Appraisal (PRA) methods;
- The Grassroots Development Framework or "Cone" developed by the Inter-American Foundation¹.

A selection of stakeholders including farmers, extensionists and funders used the first two of these methods for the identification of indicators. The ethnographic methods helped to identify internal relationships between the personnel and the project, and the PRA methods helped identify the evaluation criteria of the three groups. The evaluation criteria identified were then systematised within a conceptual framework along the lines of the six categories of the IAF Cone. This helped to visualise the different dimensions of impact that could be expected.

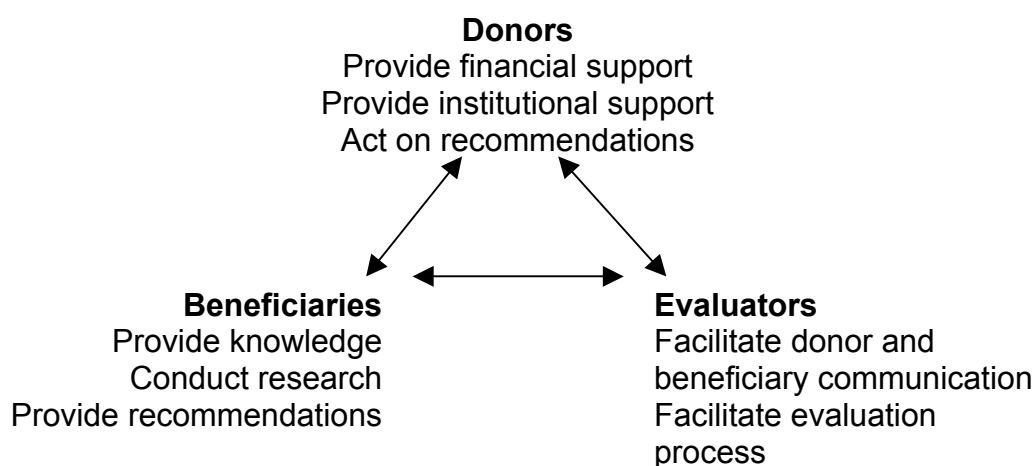
This evaluation demonstrates that PRA methods can be valuable in evaluation exercises and in aiding institutional learning. However since these methods can generate a large amount of information it is helpful to combine this approach with a conceptual framework such as the Cone. PRA methods are useful for starting discussion and participatory analysis rather than providing answers to them.

Participatory evaluations in ICT projects should primarily be oriented to the information needs of the programme stakeholders. The scope of participants should include all stakeholders, beneficiaries and the non-beneficiaries of the

¹ IAF experience has demonstrated that each project produces results not only for individuals but also for organizations and society. Therefore, the cone shape of the GDF portrays the potential dimensions of impact of grassroots development, commencing with individuals and families, organizations, and the community or society at large – the three LEVELS of the GDF. Full document in Links

programme. This will result in finding the reasons for not participating in the programme. Participant negotiations are very important to reach a consensus on evaluation findings, and to solve problems and make plans to improve performance. Views from all participants should be sought as more powerful stakeholders can undermine the others in a group. This situation can be avoided and the role of evaluator in this approach becomes that of a facilitator. Many ICT projects suffer from a lack of understanding of the project aims, objectives and concepts by all the stakeholders. New technologies, such as the Internet can often be difficult to rationalise and care is needed to prevent some people from becoming marginalised due to their lack of understanding of the technology. Flow and system diagrams along with focus groups are necessary to give the stakeholders information on exactly what can, and more importantly, what cannot be achieved by ICTs. For example, a project to bring Internet connection to peri-urban enterprises via Telecentres was surprised to find what was expected from the Internet. The beneficiaries were told it could provide information, and one stated that, Yes, he thought it would be useful to find out where was the cheapest place to buy his shoes. Other PLA techniques may not be as useful at the outset for setting indicators, as it is difficult to produce accurate rankings for what people have difficulty envisaging.

Case studies are often a way in which the benefits of ICTs are illustrated, although this method suffers from not necessarily finding the project as a failure even if in reality it was so. Participant and direct observation can prove to be valuable techniques as the use of modern technologies often facilitates this kind of interaction.



Beneficiary-focussed participatory evaluation

The following participatory evaluation framework can be incorporated into ICT programmes for enterprises development with necessary arrangements by programme staff and their collaborators , including government offices, NGOs and community members. It may consist of four basic principles:

1. Pre-planning and preparation
2. Generating evaluation questions
3. Data-gathering and analysis
4. Reflection and action

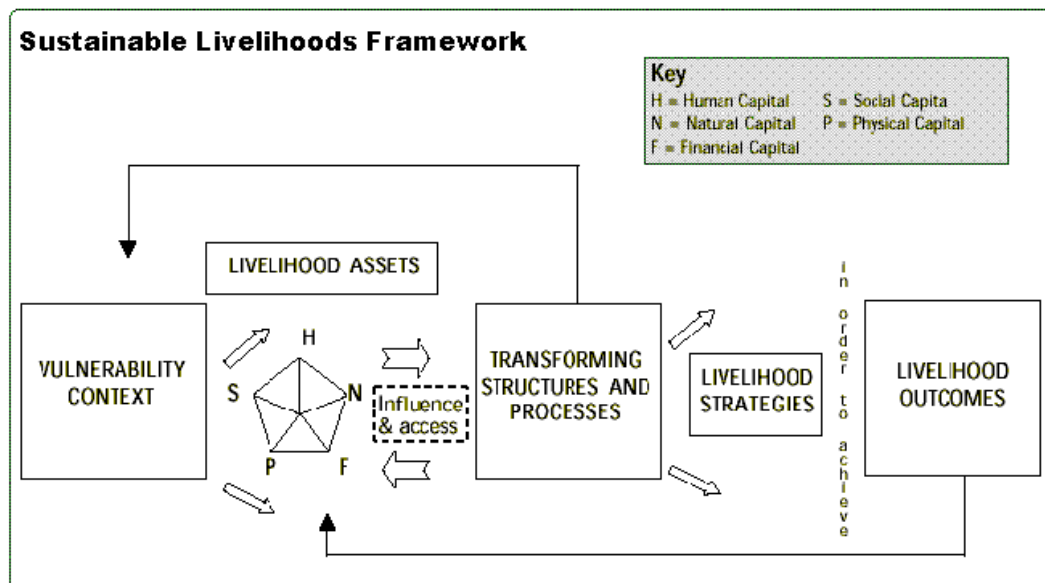
These are the suggested steps to make each phase of an evaluation participatory²

Pre-planning and preparation	<ul style="list-style-type: none"> • Outline a conceptual framework based on participatory evaluation principles • Define necessary ICT parameters for the participatory evaluation • Assess prevailing conditions for introducing ICT intervention, constraints and resources, and enabling and inhibiting factors • Identify the participatory evaluation facilitator, team members and stakeholders • Negotiate the purpose and objectives of the evaluation with all stakeholders
Generating evaluation questions	<ul style="list-style-type: none"> • Facilitate participatory workshops in, or field visits to, stakeholders' enterprise • Collectively identify the main focus of the evaluation
Data-gathering and analysis	<ul style="list-style-type: none"> • Provide necessary training in data-gathering methods • Gather and analyse data collectively
Reflection and action	<ul style="list-style-type: none"> • Prioritise problems to be solved or questions to be answered • Coordinate resources for resolving problems identified during the evaluation • Take collective action

3.3 SL framework for impact assessment

Sustainable livelihoods is a systematic approach that links issues of poverty reduction, sustainability and empowerment process such as participation, gender empowerment, human rights and good governance. The attractiveness of this approach lies in its applicability to different contexts, situations of uncertainty and in its capacity as a consultative and participatory process for the cross-fertilisation of ideas and strategies between various stakeholders, be it in enterprise development or poverty alleviation

² Adapted from the UNDP evaluation guidelines



This approach demands more holistic understanding of poverty, and of the linkages between different livelihood components while assessing the impact of any technology projects. A community will contain various capabilities, assets and activities as their means for making a living. Assets include the human, physical, financial, natural and social capitals of the community. An ICT intervention should take these assets into account and enhance the livelihood capabilities and assets while not undermining the natural resources base. Hoon et al (1997), give the following examples of assets together with some, non-exhaustive list of indicators for their measurement.

ASSET	INDICATOR
Land	Tenure, Fertility, Quality
Health	Health, Life expectancy
Savings / Investment	Jewelry, Access to credit, Cash savings
Livestock	Type, Mix
Dwellings / shelter	Ownership, Quality
Natural resource base	Common Property Resources
Traditional knowledge	Institutions, Traditional Education
Intra-household Relations	Household size, Division of labour, Educational status of women
Infrastructure	Wells, Roads, Health clinics, Electricity, Flexibility in using transport and housing
Time	Daily tasks, Learning, Time spent with other age groups, Leisure time, Community time
Food Security / Insecurity	Fluctuation of food prices, No. of food distribution centres
Belief systems / attitudes / lifestyle	Happiness, Awareness, Experimental innovation, Aspirations
Social capital	Robberies, Civil violence, Physical mobility, Corruption, Activities done collectively, Number of Community Based Organisations (CBOs), Length of school days, Percent of elections involved with and vote for politicians liked

The Livelihood approach will also help in assessing the changes due to ICTs in measurables (e.g., income, employment opportunities, production, yield, etc.) not in their own right, but in terms of the contribution they make to livelihoods. The contribution may be direct in many respects (e.g., food security, wealth, health, etc.) as well as indirect in affecting their assets, activities and options, and ability to cope with changes. Changes in terms of how people live after the ICT intervention is as important as what they achieve. Hence, it becomes imperative in this assessment to cross-check multiple types of data - qualitative, quantitative, subjective and objective, and also to assess both local level as well as higher level influences on livelihoods. In a nutshell, the livelihoods approach draws on aspects of both conventional and participatory monitoring and evaluation (PM&E), and it employs a variety of methods and data in a people-centred approach to assess the impact in their own perspectives.

Case studies:

Geographical Information Systems in Sustainable Development

- The Africa Real Time Environmental Systems (ARTEMIS) supported by the FAO uses infrared sensors on the NOAA satellites to indicate the amount of photosynthetic activity taking place within a particular area. This in turn can identify the level of vegetation and can be used for early warning of potential famine created by poor harvests. The satellite images have an initial resolution of 1.1 km.
- With the project Leishmaniasis, Southern Sudan, it is now possible to link the rise of Kala Azar with the reduction in a particular type of tree cover, namely Acacia-Balanitewoodlands. Satellite-sourced information is incorporated into a GIS that is integrated with other information about the disease
- Satellite images are being used in the Gambia to examine different variations in malaria transmission. Data on malaria prevalence and intensity now can be combined with information on the type of soil and the proximity of a particular village to the River Gambia.
- Regional Analysis by Intelligent Systems on GIS (RAISON-GIS) developed by the IDRC is being used in different part of the world as a tool to analyse the quality of drinking water. This system greatly reduces the risk of water-borne diseases as well as parasites.

3.4 HR framework for impact assessment

Enterprise development policy can make a significant contribution to human rights and social inclusion. The contribution ED can make to achieving human rights would include, increased incomes and standards of living, employment creation, economic independence of the poor, health and well-being, security and social protection, skills acquisition and access to information, and political and cultural participation. However, the contribution depends crucially upon:

- Who is included as stakeholders in the process. These should include the project beneficiaries, together with, intermediate or indirectly affected groups, development organisations and institutions.
- To what extent are the institutions involved in the process and whether the types of employment generated are inclusive of women and most disadvantaged sections of the society.

Denial of human rights to sections of societies has been a long-standing social problem that existed and still exists irrespective of the development of ICTs and the information societies. However, the use of ICTs can impact on this phenomenon by providing communication access to people who have been denied their right to voice their opinions. An IICD Programme in Burkina Faso has established a series of Boutiques d'Information. The Information Boutiques collect and provide information about judicial matters, facilitate courses and mediate between the local population and service; meeting the information needs of the rural population of Burkina, who do not have sufficient access to information supporting basic economic, social and political activities.

Lack of access to the means of communication, increasingly used by the rest of the society, has the potential to worsen the relative position of excluded individuals and groups. After analysing over forty projects consisting of positive examples of applications of new technologies, by public authorities, private agencies and community groups, it was found out that the increasing trend toward use of ICTs, in many ways, offers opportunities for social inclusion and empowerment (Phipps, 2000). ICTs offer opportunities especially for less mobile groups and for social discussion, exchanging information, for education and training. The agricultural sector in Zambia comprises of 150,000 farmers most of whom are organised in the Zambia National Farmers' Union (ZNFU), with the entire sector organised in the Agricultural Consultative Forum (ACF). Lack of communication and information, with resulting logistical problems and adverse trading conditions, especially with rural areas, was harming the economic position of the farming communities and affecting the competitive position of agri-business including exporters. An ICT-led intervention is generating a range of information and communication services for rural areas and supporting current community Telecentres operating on a cost-effective basis.

In 1997 DFID spelt out its policies to achieve sustainable development in developing countries by addressing the poverty that those populations face (DFID, 1997). The International Development Targets, DFID believes, can be achieved by promotion of human rights and fundamental freedoms of individuals and communities. The human rights approach of DFID is based on three cross-cutting principles, which, in the example below, have been applied to the InfoVillage Project of M S Swaminathan Foundation in Pondicherry

PRINCIPLES	EXAMPLES AS APPLIED TO ICTs	FACTORS TO TAKE INTO ACCOUNT
<p>Participation - enabling people to realise their rights to participate in, and access information relating to, the decision-making processes which affect their lives</p>	<p>The InfoVillage Project of M S Swaminathan Foundation in Pondicherry, India, has developed an 'entitlements database' with the help of the government authorities and the local people there. The database enables people to access information on various government programmes for the poor and realise immediate benefits such as subsidy loans from the bank, unemployment allowance, widow's pension etc.</p>	<p>The following learning points have come from developing this database:</p> <ul style="list-style-type: none"> • Available information is often buried in offices and files • Identification of the right information that should go onto the database is needed • Disbursement of government benefits quickly to the needy and the poor is increased • The chances of corruption are highly reduced
<p>Inclusion - building socially inclusive societies, based on values of equality and non-discrimination, through development which promotes all human rights for all people</p>	<p>While negotiating with the community the Infovillage project has made it mandatory that the project should be inclusive of women, the marginalised (locally the Dalit) and children. The project has more female staff members than their counterparts</p>	<ul style="list-style-type: none"> • Male dominated communities were not receptive to this idea. But the project ensured that this would happen. • It is equally important that the men realise that the project is beneficial to the community.
<p>Fulfilling obligations - strengthening institutions and policies which ensure that obligations to promote human rights are fulfilled by states and other duty bearers</p>	<p>Women also used the scheme to access a previously confidential government list of families eligible for low-income assistance</p>	<ul style="list-style-type: none"> • Government is willing to participate in collating of information for the database

The above-mentioned approach will require the acknowledgement of the needs of the stakeholders in the process. This means empowering people to take their own decisions, rather than being the passive objects of choices made on their behalf. The following stakeholders will have to be taken into account while motivating government to promote rights for the people regardless of differences of race, gender, age, disability or other identity:

GROUP	APPLICATION OF ICTs	HOW TO ASSESS IMPACT
Poor entrepreneurs, including women, the poorest and most disadvantaged and particularly those involved in micro-enterprise	<ul style="list-style-type: none"> • Business information • Marketing information • Regulatory issues • Non- enterprise information such as education, health and social 	<ul style="list-style-type: none"> • Usage figures for ICTs • Membership of telecentre schemes
Workers in enterprises of all sizes	<ul style="list-style-type: none"> • Employment rights • Communication for overseas workers 	<ul style="list-style-type: none"> • Competition from MSEs • Turnover of workforce - are more starting to be self employed?
Other poor people in the households, communities and markets where MSEs are being promoted	<ul style="list-style-type: none"> • Market information • More competition in products, especially prices 	<ul style="list-style-type: none"> • Range of services offered.

A case-study

Enhancing the Capacity of Human Rights and Advocacy Organisations in Southern Africa

This IDRC/Acacia study aimed at investigating the feasibility of developing a programme to enhance the capacity of human rights and other advocacy organisations in southern Africa through taking advantage of current developments in ICT.

More specifically, this investigation sought to:

- Assess their current technical capacities and capabilities for accessing the Internet
- Assess their knowledge, attitude and practices regarding email, web, and other resources of the Internet
- Identify their principal training needs in relation to human rights and advocacy, management and organisation development, and effective use of the Internet
- Identify the form of computer-based learning materials that can be provided where access to the Internet is limited or expensive.
- Identify potential resource persons and NGO training organisations who might collaborate in the development and production of appropriate learning materials

The survey was conducted in eight southern African countries. Each country was visited by at least one member of the team. Structured interviews (using prepared questionnaires) and focus group discussions were held with individual or groups of organisation. Representatives of NGO umbrella organisations were also interviewed, from whom information was obtained, not only about their own needs and capacities, but also those of their constituent member organisations. The information so gathered was incorporated in to the analysis. At the end of the survey, the investigators met in Lusaka to analyse the data and to prepare this report. Drafts of the report were then exchanged and refined via email.

This approach demonstrated the capability of focus group discussions and the involvement of users of ICT services in evaluating the usefulness of the project, and to identify their own training needs. However, the components of HR approach of involving all stakeholders was not met. Although effective, this case study reiterates the need for applying the HR framework in a very rigorous manner.

4. Possible options for IA in ED

The criteria for impact assessment of enterprise development programmes must go beyond increases in incomes and assets to include the wider aspects of livelihood assets such as Human, Social, Natural Physical and Financial capital.

It is equally important to include all the stakeholders in addition to the entrepreneurs themselves while assessing the impact. The methodologies for Impact Assessment should be based on the operational principles that would include the aspect of accountability to stakeholders. A high degree of involvement by all the stakeholders in the whole assessment process will change the perspective of the evaluation. Difference in methodologies, data collected, the importance of this data and measurement of achievement from the data will all provide a broader picture to the impact assessment process.

4. 1 Key steps in designing and implementing impact evaluations

Due to the lack of information about ICT projects, and the real absence of impact assessment data, most projects should start by collecting their own baseline data and completing needs assessments of all the stakeholders. This should ensure that the ICT intervention is supported by other delivery mechanisms and that the important function of the first mile of connectivity for rural beneficiaries is not overlooked. (Richardson and Paisley, 1998)

STEP	ICT RELATED ISSUES
Determining whether or not to carry out an evaluation	<ul style="list-style-type: none"> • Are there similar projects and studies that lessons can be learnt from already? • Are older forms of ICTs currently under or over utilised, or simply not available. (Radio, Telephone, Fax, Post, Newspapers)? • What limits can be envisaged to the evaluation?
Clarifying objectives of the evaluation (who is it for, who is it done by, why is the information being collected, what will be done with the information, and the evaluation etc.)	<ul style="list-style-type: none"> • How will the evaluation fit into the project - is the project flexible enough to accommodate any changes in direction or emphasis? • How comfortable are the stakeholders with issues regarding new technology and the impacts it can bring?
Exploring data-availability	<ul style="list-style-type: none"> • What is currently there to be evaluated regarding ICTs? • What effect does infrastructure have on the data-availability?

Designing the evaluation	<ul style="list-style-type: none"> • How can all stakeholders be included in a participatory way? • What indicators should be used? • What is the expected rate of use of the intervention?
Forming the evaluation team	<ul style="list-style-type: none"> • What knowledge of ICTs and their use by poor people do the team have? • How confident are the team of gauging understanding of ICTs and explaining in simple terms the technology options?
If data will be collected	
– sample design and selection	<ul style="list-style-type: none"> • Are the pilot questionnaire audience representative of the general level of ICT awareness in the project areas? • Are there issues relating to literacy, language etc that may exclude some stakeholders, both in the evaluation and in the ICT intervention?
– data collection instrument development	<ul style="list-style-type: none"> • Can there be any automated way to collect data about ICT usage? • Does this impact the evaluation or raise any privacy problems?
– staffing and training fieldwork personnel	<ul style="list-style-type: none"> • What knowledge of ICTs and their use by poor people do the team have? • How confident are the team of gauging understanding and explaining in simple terms the technology options and the remit of the project?
– pilot testing	<ul style="list-style-type: none"> • Are the pilot audience representative of the general level of ICT awareness in the project areas? • How will feedback be incorporated into further work and impact assessment?
– data collection	<ul style="list-style-type: none"> • Is control data to be collected from those not using the ICT intervention? • What level of participation is recorded? • What are the reasons for non-participation?
– data management and access	<ul style="list-style-type: none"> • Can the data be synthesized so that evaluation against other ICT or ED projects can be made?

Ongoing data collection	<ul style="list-style-type: none"> • How does it feedback into the project and what are the benefits? • Will trends in greater ICT use be picked up by the evaluation? • How will the data from people who tried using the intervention a few times but found it of little benefit and so stopped, be captured?
Analysing the data	<ul style="list-style-type: none"> • What will the project do with the evaluation data - where does it feedback into the project? • How can the qualitative data about specific case studies (success and failure) be reported?
Writing up the findings and discussing them with policy makers and other stakeholders	<ul style="list-style-type: none"> • What policy and infrastructure issues arise and how can the project influence these issues? • What level of support in the project is there from policy makers and private telecomms operators in country? • Do the policy level stakeholders have any "buy-in" or control of the project goals?
Incorporating the findings in the project design	<ul style="list-style-type: none"> • If changes are needed, is it the ICT intervention, the first mile of connectivity, the infrastructure, the policy or others that need addressing?

Any impact assessment will undoubtedly be a learning process, and this needs to be fed back into both the project as a whole, but also into subsequent assessments and other ICT interventions. The scope for scaling up of successful ICT projects is large due to the replicability of the technology options used if the infrastructure is in place. Impact assessment plays a crucial role in ensuring the positive benefits of ICT interventions are acknowledged and acted upon by policy makers, donors and the private sector. In this respect, impact assessment needs to discover what is effective and what is not and so provide options for adapting the activities of the project and the impact assessment process. Effectiveness, or not, of the project with regard to the approaches set out in section 4 along with effectiveness of the process of impact assessment both need to be measured and distilled into feedback.

5. Conclusion

- ICT programmes in Enterprise Development need to be assessed. Impact assessment exercises are visible in other sectors, but few documented cases exist in ICTs because the sector itself is new. A recent survey of donor ICT initiatives and programmes (OECD, 2001) identifies over one hundred bilateral, multilateral, regional, foundations and other non-profit making donors that are currently funding ICT-related projects concerning developing countries. An estimated annual total of US\$ 500 million of private and public support is provided to ICT-specific programmes, yet there is little serious impartial and representative research on the impact of ICTs on enterprise development in developing countries.
- Although the participatory approach is clearly favourable to the conventional approach for assessing ICT projects, the guiding principle of the methodology should be based on the SL framework, with input from the Human Rights Approaches' three cross-cutting principles of participation, inclusion and fulfilling obligation. This will give a systematic approach that will provide a clear link between ICTs, enterprise development and the reduction of poverty.
- A combination of methods - qualitative, quantitative and participatory suit ICT projects. Standardising such a methodology for each stage of the project cycle can minimise the reporting needed. Integrating it into the project cycle will ensure that feedback is noted and acted on.
- Donors and researchers have to concentrate more of their efforts and help on strengthening the process of impact assessment strategies for ICT projects in Enterprise Development, emphasising how the strategies can be integrated more effectively with existing enterprise development support structures and resources.

6. Links

Support mechanisms for inter firm linkages among SMEs: impact and assessment <http://idpm.man.ac.uk/idpm/fdwp18abs.htm>

Guidance notes on increasing the participation of the poor in the assessment of the impact of development interventions
<http://www.mande.co.uk/archives/repppr077.htm>

Evaluation impact assessments by ITDG
<http://www.itdg.org/> and then search the site by keywords

Assessing community telecentres: guidelines for researchers
http://www.idrc.ca/acb/showdetl.cfm?st=0&st2=0&st3=0&DID=6&Product_ID=576&DS_ID=2

Impact assessment methodologies for micro finance
<http://www.mip.org/pdfs/aims/impasses.pdf>

Inter-Agency Project on Universal Access to Basic Communication and Information Services - ACC Statement on Universal Access to Basic Communications & Information Services. <http://www.itu.int/acc/rtc/acc-rep.htm>

The Impact of Mexico's Retraining Program on Employment and Wages (PROBECAT)
<http://www.worldbank.org/research/journals/wber/revmay94/impact.htm>

Impact of Active Labor Programs: Czech Republic
http://www.worldbank.org/poverty/impact/practice/annex1_5.pdf

Information, ICTs and small enterprise: lessons from Botswana
http://idpm.man.ac.uk/idpm/di_wp7.htm

Evaluating the Gains to the Poor from Workfare: Argentina's TRABAJAR Program.
<http://wbln0018.worldbank.org/research/workpapers.nsf/View+to+Link+WebPages/C93D3FD729EEE6C2852567E00055E66E?OpenDocument>

Impact assessment of African agricultural technology development and transfer: synthesis of findings and lessons learned
<http://www.aec.msu.edu/agecon/fs2/polsyn/no28.htm>

Assessing the impact of rural road projects in Vietnam
http://www.worldbank.org/poverty/impact/practice/annex1_15.pdf

Impact assessment of the PULSE microfinance programme in Lusaka, Zambia <http://www.bath.ac.uk/Centres/CDS/pulsehome.htm>

Guidelines for environmental impact assessment by SIDA
<http://www.sida.se/Sida/articles/5000-5099/5073/guidlin.pdf>

A meta-level conceptual framework for evaluating projects involving
information and communication technology
<http://www.yorku.ca/research/dkproj/meta4/>

Guidelines for microfinance impact assessment by USAID
http://www.dec.org/pdf_docs/PNACJ137.pdf

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Enterprise Development and ICTs: Research on innovation and best practice

Executive Summary of Draft Report

The Enterprise Development Department (EDD) of DFID undertook in its recent strategy paper to explore the use of ICTs for the promotion of enterprise development. To inform its own programme and project development EDD is interested to learn more about current research and innovations in this particular area, and to this end EDD commissioned this desk study.

In the study, the term 'information and communications technologies' (ICTs) is interpreted broadly, to cover the broad spectrum of technologies used for the collection, processing and transmission of information. MSMEs interact with a range of actors in their production chains, using a variety of means of communication. They require information about four main aspects of their operations: supply, demand, the operating environment and internal processes, and this information is most likely to be communicated through informal networks or business relationships.

Four functional areas for ICTs and enterprise operations can be identified:

- ICTs as an enterprise output
- ICTs as a primary processing technology
- other ICT-related support activities
- ICTs as a secondary processing technology.

Few 'livelihood enterprises' (i.e. micro- and small-scale enterprises which contribute to family income, enabling the purchase of essential goods and services) have direct access to digital ICTs, and indirect or intermediated access to ICTs will be the norm. ICTs allow a reduction in transactions costs, improved communications with markets and in the supply chain, and improved information about new opportunities. They can remove the constraints to obtaining and communicating information, empowering enterprises and poor women and men generally.

The most common way of providing ICT access for 'livelihood enterprises' is through telecentres, often as components in other programmes. These facilities may include telephone, fax, documentation searches on demand, video libraries for entertainment and education, health and nutrition training, government services, market prices, and more. As well as questions of access, the availability through ICTs of relevant information content is a constraint on their assisting 'livelihood enterprises'.

ICTs applications will be found across the whole SME sector. Evidence suggests, however, that service-based enterprises (business, financial, technical) and importers/exporters (tourist sector, manufacturing and services)

will reap most benefit from ICTs, and will be in a better position to transmit benefits to the wider community.

Possible areas of support for development of such 'growth enterprises' (i.e. in which the owner seeks to expand activities to generate higher levels of return for consumption and/or investment) include more effective communications for the wider enterprise sector; facilitating effective use of computer-based information systems within enterprises, through private sector provision and encouraging collaborative arrangements, and providing technical support. In most countries in the South the technological capability to adopt ICT-based production systems is not yet established.

At present, the local ICT-industry (products and services) in most countries is dominated by the subsidiaries of large multi-national computer/ consultancy companies. For a number of reasons, therefore, development of nascent locally-owned ICT-enterprises (i.e., the local ICT sector) should be promoted.

Private-sector business membership organisations should be considered as effective and sustainable information providers for both 'livelihood' and 'growth' enterprises in the South. However, low-income enterprise operators face market failures in the provision of ICT-based, and non-ICT-based, business development and information services, and interventions to address such constraints will be required.

ICT-capacity should therefore be built within associations representing different (small) business sectors, chambers of commerce, umbrella associations, and employers associations. Interventions should concentrate on support for facilitation, technical assistance and incentives to encourage competitive performance of new and existing BDS providers, innovations, and the development of appropriate service products.

The ICT uses prioritised by different MFIs are likely to relate closely to the different core objectives found within the sector (ranging from prioritising financial sustainability to tight targeting of the poorest and most excluded entrepreneurs).

Before BDS providers and MFIs are able to maximise the benefits of ICT use in client services they may need to work to increase familiarisation with ICTs amongst their target group. Without this, they are likely to find that socio-cultural barriers to ICT use amongst some of their target group actually works as a constraint to outreach.

Many of the programmes to promote the use of ICTs by SMEs in the North have been undertaken in pursuit of local or regional regeneration (employment creation) programmes based on 'high growth' sectors (where ICTs are the primary processing technology or the product). Programmes promoting ICTs have also been based on skills development (again with employment creation as an objective), and on increasing competitiveness. Awareness raising amongst SMEs has been a major element of programmes in Europe.

The successful adoption and effective use of ICTs by either 'growth' or 'livelihood' enterprises is crucially dependent on the environment in which they are operating. The ability of countries in the South to provide the institutional and policy framework required for successful adoption of ICTs varies considerably between countries and regions. The e-readiness of individual countries depends not only on the ICT capacity of individual enterprises or clusters, but, critically, on the readiness of the wider business community and the institutional and political environment. Four key aspects of the external environment for MSMEs therefore require attention: the policy and regulatory framework, the telecommunications (and other) infrastructure, the ICT sector itself, and the promotion and awareness of ICTs and e-commerce.

Full participation in e-commerce and the widespread adoption of ICTs for enterprise operations will require expansion of the ICT infrastructure and other essential services (such as electronic banking), the development of a strong user base to make it easier for enterprises to enter into e-commerce, and support services for MSMEs, such as public access facilities (telecentres). An objective of international organisations should be to support governments in the South to establish the business environment, the skills base, the infrastructure and support services to facilitate and encourage ICT use.

In conclusion, the most important areas for DFID / EDD support for ICTs and enterprise development are:

- The policy and regulatory environment, specifically to enable ready adoption of e-commerce.
- The development of content relevant to the information needs of MSMEs, including development of the institutional arrangements and mechanisms to maintain and update relevant content.
- Support for the development of the ICT sector, including national and local ICT technical capability.
- Support for increasing awareness of ICTs amongst policy makers, BDS providers, enterprise associations and MSMEs.
- Inclusion/integration of ICTs in other SED programmes.
- Support for networking using ICTs amongst BDS providers and MFIs to exchange good practice.
- Support for an authoritative knowledge base of good practice on ICTs and SED.
- Support for pilot or experimental projects aimed at enabling access to ICTs, in order to obtain sound empirical information.