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Integrated service delivery to communities: from model to prototype

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1 Introduction

Community service centres are widely seen as a key measure of offering a wide range of services needed by the communities to the communities, and empowering communities to bring about their own development (Conradie, Morris and Jacobs 2003).

There are many types of community service centres or telecentres, as they are better known.

Telecentres may be independent individual agencies, or various government initiatives such as Universal Service Agency – Telecentre Programme, Government Communications and Information Services (GCIS) – Multi-purpose Community Centre (MPCC) Programme, that are part of a project or national agency. They are also known as community service centres, community information centres, community resource centres or community computer centres, according to the *MPCC Research Report* (Benjamin 1998:4).

At the end of the day, telecentres or MPCCs aim to stimulate and respond to the demand for information and communication services needed by the community. An indicator of the success of any telecentre or MPCC is the degree to which it becomes an integral part of the community it serves.

According to the South African Government Multi-purpose Community Centres programme (Government Communications and Information Services 2001), MPCCs have been identified as the primary vehicle for the implementation of development communications and information programmes, as these are capable of offering a wide range of services that communities can use for their own empowerment.

The MPCC is a key component in the development related to the Reconstruction and Development Programme (RDP) and integrated delivery of government services. The MPCC can be described as a 'one-stop development shopping centre' which is the home of various developmental programmes and service providers. In all cases, the sharing of facilities and the synergy of the providers should result in more cost-effective and efficient provision of services. These centres can offer a range of services as defined by the needs of that community (Mncube 2003; Jacobs 2003). These services can include (Benjamin, 1998:4):

- A community information centre
- A government information one-stop shop
- Training, for example computing, bookkeeping and office skills
- A community resource centre
- Small business support
- Integrated delivery of a range of government services
- Related developmental and entrepreneurial services.

Not all MPCCs will offer all these services. The services depend on the needs and priorities of the community.

With reference to Jensen and Esterhuysen (2001:2), 'multi-purpose' means that a telecentre is able to provide a variety of services to different user groups within a community, for example, services relating to education and training, information, health, culture, the economy, welfare, social issues, safety and many more. Telecentres can operate as businesses.

According to Proenza, Bastidas-Buch and Montero. (2001:iii), a telecentre may be defined as 'a shared site that provides public access to information and communications technologies'.

The report from the Government Communications and Information Services (2001), the *Establishment of Government MPCCs*, provides the following brief description of a MPCC: 'An MPCC is a place where a number of services are provided by local, provincial and national government, as well as parastatals, NGOs and the private sector. The services offered at an MPCC are those that have been identified by communities.'

From the above definitions it is evident that the concept of a MPCC in African development

can take many forms. Since different types of MPCCs are being explored within the Acacia Initiative, no single definition will be accurate. Nevertheless, the following can be used as a broad working definition for the purpose of this article (Kanfi and Tulus 1998:6):

> 'A location which facilitates and encourages the provision of a wide variety of public and private information-based goods and services, and which supports local economic or social development'.

Such services might include basic communication such as voice, facsimile, e-mail and Internet access, public and quasi-public sector services such as telemedicine, distance education, municipal governance services and private sector services such as news distribution, telecommuting services, training, access to information on markets, crops and weather conditions, and much more.

In analysing the definitions of a MPCC as explained by various parties in SA and abroad (indicated in examples above), it is clear that MPCCs are playing a major role in *integrated service delivery* to the various communities across the globe in developing countries.

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2 ICT-hub model for rural communities: an overview

Without good access to ICT and being e-literate, certain groups, low-skilled or low-paid workers, unemployed people, parents, and those with disabilities are in danger of not being able to participate in the new networks of economic activity or the old ones that are increasingly being changed by ICT. However, it is likely that assisting people to improve their access to and skills with ICT will be an important means for a government to grow an inclusive, innovative economy for the benefit of a country and therefore the development of the ICT-hub concept or model (Jacobs 2003:108–139).

In SA and abroad, community service centres are playing a major role in educating and disseminating information to a spread of communities whether rural, peri-urban or urban. Historically, community centres have been meeting places for youth, pensioners and many other community activities organized in community halls, clinics and schools. Therefore, community centres serve a variety of needs to the community as well as meeting points. However, the importance of the role that telecommunication plays in facilitating the activities and extending access to information to the community service centres, illustrated by various studies (Benjamin 2002; Jauering 2003; Mncube 2003), shows that centres that are linked to other centres have greater access to a wider range of information (e.g. health, agriculture, tourism and education).

Considering the above stated information, the ICT-hub therefore provides a structure that enables communities to manage their own development, by providing access to appropriate information, facilities, resources, training and services. Therefore, the definition of an ICT-hub is:

> 'An ICT-Hub is a sustainable physical centre with the necessary infrastructure to provide generic services like telecentres, desktop publishing, business support, training and information to the community and SMME support through the use of ICTs' (Jacobs 2003:110).'

The focus of the ICT-hub can therefore address the problems related to ICT in a community. Some problems that are experienced in communities relate to ICT and are addressed in the ICT-hub model, as listed below (Jacobs 2003:112):

- Insufficient telecommunications services particularly in areas of lower population density;
- a basic lack of knowledge regarding the benefits of ICT among certain groups;
- a lack of skills to utilize ICT to best effect in a community;
- an inability to afford the costs of access to equipment and the network;
- communities and locations with poor Internet availability are likely to be considered less favourable places for economic investments, thereby limiting enterprise development and job creation and restricting the growth of SMMEs, currently seen as a key driver of the economic growth of a developing country;
- for telecommunications to be most effective, communities must identify first how they could use ICT and generate markets for goods and services which ICT would enable them to produce;
- lack of awareness or understanding of the potential of the Internet to improve personal and economic well-being of a community;
- insufficient training and professional development in ICT skills for education professionals and community advisors;
- inadequacy of technical infrastructure in small towns and rural locations; and
- lack of new product developments in a community.

These are some of the problems experienced in communities where ICT could play a major role in the economic growth of an area. The ICT-hub model aims to address most of these issues by identifying services and functions needed by communities.

It is important to note that every community's needs differ and therefore the functions and services will differ from community to community. This ICT-hub model was developed from a practical implementation point of view. There are various guidelines available regarding community centres as a reference for planning the set-up of a centre (Colle and Roman 2002; Jauering, 2003; Jensen and Esterhuysen 2001). However, the ICT-hub focuses on a logical flow of events in order to assist with the planning and implementation of such a centre based on previous experience and research.

2.1 Identify main business areas

Telecentre services (telecommunication and Internet services):

- Make and receive telephone calls
- Send and receive facsimiles
- Send and receive e-mail
- Access the Internet.

DTP services (desktop publishing, designing and copying services):

- Data capturing
- Preparing professional curriculum vitaes for job seekers
- Copying and creating business cards and letterheads
- Designing brochures, pamphlets and advertising material for small businesses and making copies for distribution
- Designing and copying community notices such as those for funerals and weddings
- Assisting schools with copying, reports and question papers.

Training services (various types of training):

- Computer training, including operating systems, word processing, spreadsheets and databases

- Business training; including marketing, business planning, pricing and costing
- Project management training for community projects and SMMEs
- Financial management of community organizations and SMMEs.

Business support services (providing professional business support services):

- Assistance with conducting viability studies, environmental scans and competition analysis
- Generating professional business plans
- Assistance with compiling funding and financing proposals
- Tender advice and assistance with responding to national, provincial and local tenders
- Financial management advice
- Assistance with implementation and maintenance of businesses through a system of aftercare, mentoring and ongoing support.

2.2 Identify content needs

The ICT-hub model identifies the relevant applications according to the needs of the community, the relevant content needs to be researched, created or populated to support the selected applications in conjunction with the relevant content providers or institutions in the field of interest of the community. Some of these content needs are explained in Table 1.

Table 1 Content needs for an ICT-hub

Content needs	**Explanation**
SMME	An ICT-hub should strive to improve the competitiveness and growth of small businesses (SMMEs) in the community through the supply of relevant, value-adding business information.
Education	Educational content could be hosted at the ICT-hub and the ICT-hub can be used for supporting teachers in the community with the education process.
Health	Health content could be hosted at the ICT-hub as a source of basic health information for the community members, especially the youth, who would be more interested in computer technology.
Agriculture	Agricultural content in the form of 'infotoons' can be digitized and hosted at the ICT-hub to support food, garden and farming activities in the community.
Tourism	Tourism information regarding the community could also be hosted on a server at the ICT-hub and the ICT-hub can act as an advertising agency for the community resources.
Information dissemination (i.e. government)	The ICT-hub can be used for the collection and dissemination of government information in the communities.

2.3 Identify monitor and evaluation criteria

The ICT-hub model stresses the continuous monitoring and evaluation action when implementing a community centre to measure the strengths and the areas of improvement of such centres.

A distinction needs to be made between the monitoring and evaluation of processes, outcomes and impacts. For each of these three types of actions, different *indicators* usually have to be developed (in cooperation with local community representatives) (DFID 1995):

- Firstly, process indicators are measures of the implementation of development activities and how effectively this is done. They could include process documentation (e.g. records of planning and decision-making meetings), quantitative and qualitative feedback (via interviews and questionnaires) from the communities to the developers regarding the appropriateness of specific developmental and training actions, as well as participatory self-evaluation to measure the local residents' perceptions of the quality of stakeholder participation achieved by the consultative process.
- Outcome indicators involve the effectof the activities that have been undertaken, mainly the more immediate, tangible or observable changes. This could include statistics on how many infrastructure or housing units have been erected, how many hardware and networking units have been installed, and how many people have been trained on the various courses, etc.
- Finally, impact indicators are the result of assessments aiming to ascertain the long-term and widespread consequences of the intervention. They include quantitative statistics (and qualitative perceptions of stakeholders) on, for example, improved school pass rates in the area over time, on increases in local business activity that can be traced to the development intervention, on improved access to employment, and on improved access of locals to ICT-mediated information and services.

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3 Research methodology

To determine whether a rural community centre can support the community with relevant content and service delivery in an ICT-based environment with financial success, a qualitative research methodology approach was selected. The research data were obtained through the interview process, site visits and questionnaires used during this study at the Ikageng community centre in Itsoseng. This is a rural community located between Lichtenburg and Mafikeng in the North West Province of South Africa.

The data collection process utilized questionnaire sets to acquire information on the current services offered and problems experienced with the delivery process of these services.

The content of the questionnaires focused on the main operational components and/or business areas of a community centre, namely telecentre services, desktop publishing services, training services and business support services. The information gathered was used to design a specific management model for the Itsoseng community (for the use in the Ikageng rural community centre) based on the needs identified from the questionnaires.

The last step was to discuss the proposed management model with the community centre management and staff before computerizing the paper model. The data obtained during this process through interviews and informal discussions were used to support the concept multi-media prototype model. The concept prototype model was tested within the same community centre and the data obtained through questionnaires and interviews were used as inputs towards refining the prototype. The prototype should be adaptable to any other community centre with similar needs.

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4 Participants

The participants for this study included both the management (n=4) and the staff (n=9) at the Ikageng community centre in Itsoseng in South Africa. They each had to complete a questionnaire and focus group interviews were conducted to clarify and verify certain information. It is important to understand that what was done during this study, was to conduct interviews and questionnaires to determine needs of the community and to create a prototype that was responsive to a specific community's needs and circumstances.

This means that the results are not necessarily applicable to other community centres, unless exactly the same needs and circumstances apply. What exists is an electronic model that can be introduced into a new community and then fine-tuned to the needs and circumstances of that new community by means of a similar process.

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5 Results

Specific interview questions and open-ended questionnaires were designed to elicit insight on the processes followed by MPCC staff members to deliver specific services to their customers.

The questionnaires were aimed at establishing the current services that the Ikageng MPCC offers its clients under specific categories or key operation components as discussed above. The results of the various questions and answers are summarized in Table 2 with the key operational areas listed in the left column and the services offered within the specific operational areas listed in the right column.

Table 2 Current services offered by the Ikageng community centre

Key operational area	Services offered within this operational area
Telecentre services	• Sent faxes • Receive faxes • E-mail • Internet
Desktop publishing services	• Content creation • Publication • Photocopying • Typing • Printing
Business support services	• Compile business plans • Marketing services • Financial services
Government services	• Skills development
Training services	• Introduction to computers • Microsoft Word • Microsoft Excel • Microsoft Power Point • Microsoft Access • Junior training (school children – mathematics)
Other services	• Complete tender applications for government tenders

Management and staff of the community centre were asked: 'What other forms of support

could be offered through the centre to meet the community members' needs and expectations?'. The responses were the following:

- The centre needs a support system that can assist with the management of training material, training courses, storing of standard templates to support customers' requirements (e.g. curriculum vitae and fax templates), etc.
- The centre could do with an information management system that contains general information concerning basic health care, educational and agricultural content. This could be in the form of links to Web sites or software packages that contain some of this basic content.

Table 3 summarizes the information needs of the centre staff and management with regard to services offered to community members. Needs are categorized according to the operational components as identified above:

Table 3 Summary of information needs from Ikageng community centre management and staff

Centre operational component	**Centre management response**	**Centre staff response**
Telecentre services	• Standard calculation sheets for example computer and Internet usage, faxing and phone call services • Daily general checklist when opening and closing the centre	• Standard templates to add customer content • Standard financial recording and reporting forms • Information with regard to the Internet and e-mail terminologies (WWW, using search engines, etc.)
Desktop publishing services	• Not sure, ask the staff working with those services	• Standard CV templates • Interview tips on, for example, 'what an interview looks like for the candidate' or 'how to act during an interview' or 'asking the right questions during an interview' etc. • List of shortcut keys for word-processors and spreadsheets • Short description on what a computer, word processor, spreadsheet or publishing and presentation is that they can give to their clients when confronted with these terminologies
		• Content with regard to training on Microsoft Office, Internet and e-mail usage, etc. • List of computer-based

Training services	• Need more computer-based training material to assist the centre staff with training and continuous improvement of skills	training material on the market that they could use to train customers on operating systems, Web page publishing, business analysis, project management and presentation skills • Software packages that can assist children in the community to develop their mathematical skills
Business support services	• Need a step-by-step instruction sheet that could be used when analysing customers business and drawing up business plans • Information regarding trademarks, copyright and patents	• Standard business plans • Templates for financial analysis for clients • Need a marketing plan template to assist customers to draw up a customized marketing plan • Template to assist customer in preparing a financial statement
Technology support	• Maintenance on equipment in the centre	• Need computer-based material to assist staff and clients on PC support and maintenance aspects • Books and software that could assist with technical aspects on computer and networks
Government information	• Government tenders • Funding opportunities for the centre	• Government information on funding programmes. • Government tenders
Specific content	• Basic agricultural content to expose the children to farming practices • Basic first-aid content	• Educational content to assist school children with mathematics and perceptual skills on Saturdays • Agricultural content on sustainable farming practices
Operational management (day-to-day issue)	• Guidelines for the staff on managing the centre operations on a daily basis	• Need standard checklist to ensure a quality service to the community

Based on the above feedback a business model was developed electronically to assist the community management and staff.

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6 Business model

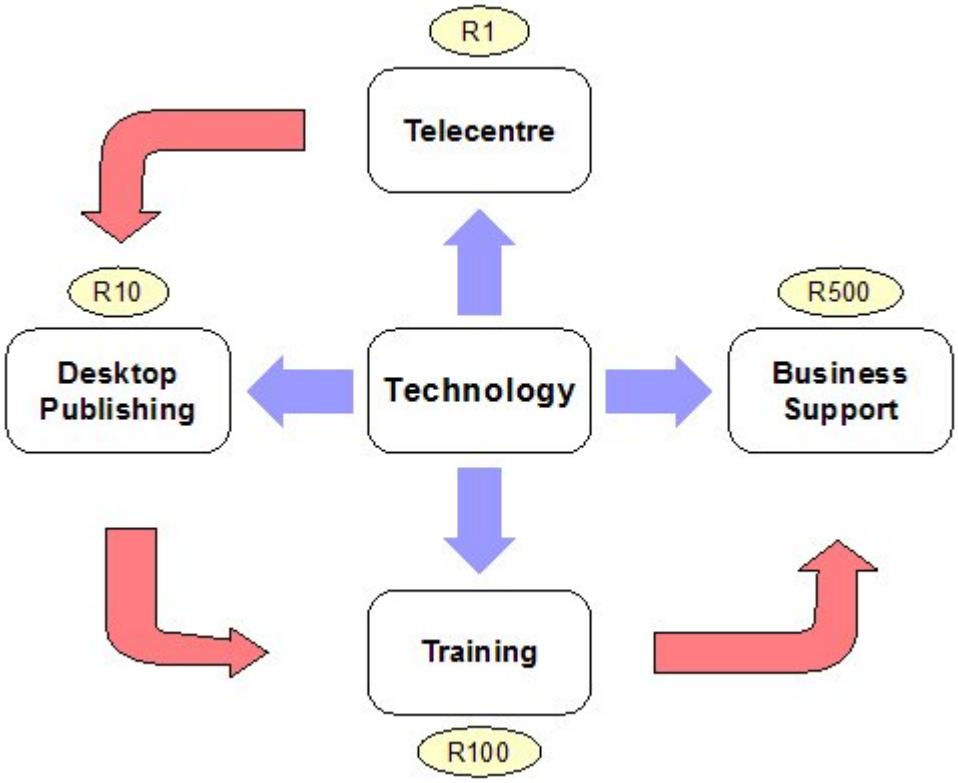
The operational and business model is based on defining the income-generating potential of

the main operational components. The main operational components are the following:

- Telecentre components with an income generating potential
- Desktop publishing components with an income generating potential
- Training components with an income generating potential
- Business support (SMME) components – with an income generating potential
- Technology to support the main operational component.

The basic income generating components of an ICT equipped community centre could be illustrated graphically as in Figure 1.

Figure 1 ICT-hub income generating components [adapted from Conradie, Morris and Jacobs (2003:212)]



Each major component provides a range of services to the community at a fee. The typical transaction value of the components of service delivery follows an exponential increase from R1 through to R500 as illustrated in Figure 1.

The low-cost, high-volume business found in the first two components (telecentre and desktop publishing services) can create the fundamental cash flow needed to support the higher-level activities (training and business support). These elements have been combined with anticipated volumes of transactions to arrive at the target income and other aspects of the business plan, to analyse the potential for the rural community centre to support itself as a self-sustaining business. It could also reduce the *digital divide* (Jacobs 2003:108–138).

In Figure 2 is given the electronic version (prototype) of the business model for rural community centres as illustrated in Figure 1 and it consists of seven major components.

Figure 2 Community centre operational components [adapted from Jacobs (2003:197)]

The electronic business model was designed to be a user-friendly information system and support tool for the management, staff and users within a rural community centre. The operational and business model was based on defining the income-generating potential of the various operational service delivery components of a rural community centre as previously discussed. The main operational components of the electronic version are the same as for the illustration in Figure 1; except for adding two extra operational components to support the need of the community, namely,

- *sector specific content* containing information regarding agricultural, health and educational aspects identified by the community centre staff and management (locally adapted content and context); and
- *government services* containing links to government-related Web sites for information purposes (content).

Throughout the research it became evident that a need existed within the Ikageng community centre to develop an electronic system that is fully interactive and easy to use by the centre staff and management. The level of complexity of the information in the system as well as the usage of the system must be equal to the level of the users at the community centre.

The challenge is to create local computer-related applications that make use of local content or input, and in so doing create opportunities for local people in the community to establish themselves in careers in the ICT domain.

Therefore, community centres provide a variety of needs to the community including serving as meeting points. However, the importance of the role that telecommunication plays in

facilitating the activities and extending access to information to the community centres can be illustrated by various studies (Conradie, Morris and Jacobs 2003; Jacobs and Herselman 2004; Jensen and Esterhuysen 2001; Whyte 1998).

The literature study further revealed that 'although the costs of using ICTs to build national information infrastructures which can contribute to innovative "knowledge societies" are high, the costs of not doing so are likely to be much higher' (Mansell and Wehn 1998). Why ICT? The real benefits of ICT in development are not rested in the provision of technology *per se*, but rather in the application of technology to create powerful social and economic networks by dramatically improving communication and the exchange of information.

ICT-hubs (or ICT-equipped community centres) can be instrumental in the development and well-being of a community. Not only can they provide people with access to information related to health, nutrition, education, agriculture and other social basic necessities, they can also support local entrepreneurs with various business services, market information and e-commerce opportunities; they can help people to connect with distant family, friends and government officials and they can provide a setting for entertainment and social affairs.

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7 Conclusion

To conclude this article, the following are some simple reminders of 'lessons learned' from ICT-hub (community centres equipped with ICT) experiences world-wide (Mncube 2003:90; Whyte 1999:79):

- ICT-hubs should concentrate on being demand-driven. This means that they should systematically promote the value of information and keep in close contact with all groups in the community so that they know what the information and communication needs are.
- ICT-hubs should focus on their products as information and communication services, rather than ICT. One of the important services is 'adding value' to network information and databases that will make the available information from them relevant to their users. Another is making use of a variety of communication channels.
- ICT-hubs should facilitate the use of their services as two-way communication channels for members of the community, making it possible for people to share their ideas with others in addition to gathering information.
- ICT-hubs need to become part of the fabric of the community, in part by building partnerships and fostering participation and cooperation with other agencies. Building a community communication system with other media is an example of this cooperation.
- Training is a vital part of the early life of an ICT-hub. Volunteers operating the ICT-hub consist of a core of early, enthusiastic and visible supporters in the community who have been attracted to the ICT-hub and staff of local agencies who all need to be on the priority list for training.

From the process described in the research methodology, the need for information with regard to templates, guidelines, specific content, etc. in the various operational components of the community centre was identified and incorporated within the prototype model. Issues identified by the Ikageng community centre staff and management with regard to day-to-day operational aspects were addressed in the prototype model of this concept quality management model for rural community centres.

Finally, a strong reason for a successful community centre is the ability to respond to

customer demands, thereby increasing its client base, which in return supports the long-term sustainability of the community centre.

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