DIGITAL INCLUSION PROJECTS IN DEVELOPING COUNTRIES: PROCESSES OF INSTITUTIONALISATION

Shirin Madon
London School of Economics
s.madon@lse.ac.uk

Nicolau Reinhard
University of Sao Paulo
reinhard@usp.br

Dewald Roode
Universities of Pretoria and Cape Town
jdr@inbekon.com

Geoff Walsham
University of Cambridge
g.walsham@jbs.cam.ac.uk

Abstract

This paper concerns digital inclusion projects in developing countries and, in particular, focuses on processes of institutionalisation of such projects. Three case studies are described and analysed. The first is the Akshaya telecentre project in the state of Kerala in India. The second is a community-based ICT project in a town in a rural area of South Africa. The third is the efforts of various agencies on telecentre projects in the mega-city of São Paulo in Brazil. The cases are analysed through a simple theoretical schema derived from institutional theory. The analyses are used to derive four key processes of institutionalisation which are argued to be of relevance to all digital inclusion projects: getting symbolic acceptance by the community; stimulating valuable social activity in relevant social groups; generating linkage to viable revenue streams; and enrolling government support. The paper concludes with some theoretical, methodological and policy implications.

Keywords: digital inclusion, developing countries, institutionalisation processes, institutional theory, telecentres, India, South Africa, Brazil.

DIGITAL INCLUSION PROJECTS IN DEVELOPING COUNTRIES: PROCESSES OF INSTITUTIONALISATION

1. INTRODUCTION

It is increasingly recognised that the so-called digital divide is not just a matter of unavailability of information and communication technologies (ICTs), but also of the social, political, institutional and cultural contexts which shape people's lack of access to ICTs, or their inability to use them effectively (Warschauer 2003). These problems apply to the socially excluded in all countries of the world, the Fourth World in the language of Castells (1998). However, it can be argued they are particularly acute in the developing countries, where large numbers of people do not have access to technology, nor the educational background or support to develop their skills in using technology to improve their own lives, or the lives of the communities within which they live.

One response to the above over the last decade or so has been a variety of digital inclusion projects in a wide range of contexts and countries (Hunt 2001; Kanungo 2003; Salvador et al 2005). These projects normally aim not only to deliver ICT access to particular targeted groups, but also to provide various types of support for learning and capacity building. Thus they aim to use ICTs to contribute to the broader goal of social inclusion (Trauth et al 2006). In this paper, we draw on experiences from digital inclusion projects in three different countries and contexts. These involve telecentres in the state of Kerala in India and in the city of São Paulo in Brazil, and a community-based ICT project in a town in a rural area of South Africa. In each case, we investigate the achievements and problems of the projects over a period of several years. This enables us to examine the changing nature of the projects, and the ways in which the projects do or do not become institutionalised over time.

The paper is organised as follows. The following section provides a brief discussion of some important challenges facing digital inclusion projects, and introduces selected concepts from institutional theory as ways to analyse these challenges. Experiences in our three case studies are then outlined, and related directly to the theoretical concepts. We then use these analyses to describe and discuss some key processes of institutionalisation of digital inclusion projects. Finally, we draw conclusions on the contributions of the paper and future research directions.

2. DIGITAL INCLUSION AND INSTITUTIONALISATION

Three issues can be identified from the literature as of critical importance to digital inclusion projects . Firstly, what has been the *value* of these projects? It is well-known in the IS field that the evaluation of the costs and benefits of technology is problematic, and this certainly applies to digital inclusion projects (Reilly and Gómez 2001). Who has benefited from the projects and in what ways? How can we assess these benefits? One concern, for example, is that digital inclusion projects may miss the least-advantaged groups in the communities that they aim to serve and thus, ironically, produce a local form of digital divide within these communities.

Even if we can be reassured that a digital inclusion project is delivering value, a second key issue is the *sustainability* of the initiative over time (Harris et al 2003). For example, most projects are started with funding from local or central government, aid agencies or NGOs. However, long-term financial sustainability implies the need to develop indigenous funding sources and sustainable revenue streams. Sustainability is not just a matter of money, but also of the development of institutional arrangements for the continuity of staffing levels, and the

long-term cultural and political support for the initiative from government officials, politicians, and the community itself.

Individual projects may deliver value and be sustainable, but the scope of such projects is often limited. A crucial issue for developing countries is *scalability.* Sahay and Walsham (2006) define scaling as the approach through which a product or process is taken from one setting and expanded in size and scope within that same setting and/or also incorporated in other settings. The unfortunate word 'replication' is sometimes used for this process, which implies the 'copying' of an initiative in a straightforward way. However, scaling of digital inclusion projects is not a simple matter of repeating a formula elsewhere, but a much more complex problem involving the development of a heterogeneous network constituted of technology, people, processes, and the institutional context.

In discussing the challenges of digital inclusion projects above, it is clear that processes of institutionalisation, or lack of them, are crucial to the long-term value, sustainability and scalability of such projects. This suggests that institutional theory may provide a fruitful analytical approach. We do not have the space in this short paper to give a substantial review of institutional theory. However, the theory has developed over a long period of time, and offers a wide range of concepts and approaches to analyse institutional persistence (Meyer and Rowan 1977; DiMaggio and Powell 1983) and institutional change (Oliver 1992; Greenwood and Hinings 1996).

The potential value of institutional theory in the IS field has been recognised for some time (http://www.istheory.yorku.ca/institutionaltheory.htm). In particular, a number of authors have applied institutional theory with a focus on IS in developing countries (Avgerou 2002, Silva and Figueroa 2002; Bada 2003; Miscione 2007), reflecting an interest in the relationship between ICTs and the institutional contexts in which they are embedded. This paper falls within this genre, in that we will draw on selected elements from institutional theory in order to analyse our field data. In particular, we build on the following definition of institutions from one of its principle theorists:

'Institutions are multi-faceted, durable social structures, made up of symbolic elements, social activities, and material resources.' (Scott 2001, p49).

Drawing from this definition, therefore, we wish to investigate the processes whereby digital inclusion projects can become institutionalised through the creation of structures of symbolically accepted goals linked to relevant social activities and supported by appropriate material resources. However, institutionalisation is not a one-off static event; institutions need to be re-created or maintained over time. With respect to digital inclusion projects, therefore, we need to also investigate the dynamics of institutional stability and change. We turn now to our three case studies, each of which we will analyse through the theoretical perspective introduced here.

3. AKSHAYA TELECENTRE PROJECT IN KERALA, INDIA

The first case study concerns the Akshaya telecentre project that was launched in 2002 as a pilot in Malappuram District in the South Indian state of Kerala. The case description which follows is based on a two-year research study from 2002-4 carried out by Shirin Madon. She was involved with the project from its inception and she carried out about 100 hundred interviews with government officials, politicians, telecentre entrepreneurs, private sector employees and various citizens. Although data collection was done mainly through semi-structured interviewing, additional data were obtained through participant observation,

attendance in public meetings, and the study of press reports and websites. More details of the research methodology are given in Madon (2005a, 2005b).

3.1 Case Description

Four interrelated processes are described below which have affected the Akshaya telecentre project at different points in time. The first process relates to peoples' perception of Akshaya as valuable for achieving Kerala's unique development model. Over the past 50 years, the state has evolved from being relatively poor and ridden with caste and class conflicts into a state with modest levels of economic growth but high levels of social development indicators, including a vibrant civil society. However, since the late 1990s, the lack of economic productivity, especially in rural areas, coupled with high unemployment was beginning to act as a serious threat for the development that had been achieved in the state. This led to an increasing expectation by the state government that information technology could act as a catalyst for improving rural economic productivity and for maintaining high levels of social development. There was multi-level acceptance of this ideology by citizens and local bodies and it had the strong backing of the state government, which facilitated the telecentre project by developing the initial suite of applications, identifying the locations of the centres in the pilot district and facilitating loans for the entrepreneurs to set up their centres.

The creation of an initial set of values for the Akshaya project built a foundation for setting in motion a second process – that of establishing local appropriation of the project. By early 2003, a critical mass of 630 telecentres had been established in the pilot district, and an extensive e-literacy programme had commenced which was funded strategically by the local political bodies to signal their participation. Mechanisms for achieving local appropriation of the project during its e-literacy phase were established through the vigorous grassroots campaigning that was undertaken at the time in order to mobilize communities to accept the project as their own. This campaigning played an important role in achieving social acceptance of the project, communicating the message that it was 'government approved'. This resulted in a large percentage of the local female Muslim population coming forward for training. By the end of December 2003, the project was deemed successful in terms of achieving significant value for the state in terms of its development goals. Throughout the district, one person per family had achieved basic IT literacy skills and the project had generated a significant livelihood for entrepreneurs, many of whom had already managed to recuperate around 50% of their initial outlay. But despite these successful indicators, it remained unclear as to whether the project would sustain itself over time.

After the euphoria of the e-literacy phase, another crucial process became important for ensuring that the project could sustain its intrinsic value as a conduit for socio-economic development. In this post e-literacy phase, there was a concerted effort to generate new commercial revenue streams for the entrepreneurs. Companies were encouraged through several promotions to consider selling their products and services, such as handicrafts, soaps, insurance policies, and banking services, through the Akshaya centres in order to generate a regular revenue stream for entrepreneurs. But problems were encountered in generating corporate confidence. No legal entity was established with whom companies could negotiate and formalize a contract, nor was there a clear channel of communication between companies and government regarding economic policy, which would ultimately affect the ability to sell products and services through the Akshaya centres.

The post e-literacy phase also led to a push by the state government to promote locally-relevant content in key socio-economic sectors such as health, education and agriculture. This was attempted in 2004 by experimenting with a health-mapping project in which the local

village council conducted a health survey of its population with the intention of using the Akshaya centres to register data about the health status of the local population. However, the project hit an obstacle because adequate linkages had not been established with the local health planning apparatus, causing suspicion about the integrity of data collected and of the ownership of sensitive health data. Appropriate institutional support was clearly needed to support this activity. An interesting linkage has recently formed between the Akshaya project and the state's agricultural department to use the e-centres in Malappuram as information points for providing advice on agriculture. Expert advice would be provided both remotely through a web portal connected to a team of agricultural officers and locally through the physical intermediation of a local extension officer who would communicate verbally with the farmer.

A final process we consider important for the project to survive over the long term is the learning that is or is not carried forward from the pilot to the roll-out phase of the project. Akshaya has now been rolled out to 6 more districts in Kerala but the model has been different. There are fewer centres, which means that levels of coverage will eventually be less than in the pilot district. Another difference is that entrepreneurs are mainly business people rather than being driven by a concern for social development. As more autonomy has been given to entrepreneurs in the location of sub-centres, there is a fear that the project may compromise on its socio-economic development priorities. Compared to the pilot phase, the roll-out districts have seen far less local campaigning to mobilize community interest in the project.

3.2 Case analysis

The first phases of the Akshaya project can be viewed quite positively through the perspective of the institutional elements introduced earlier in the paper. There was widespread promotion and acceptance of the Akshaya project as being linked symbolically to Kerala's unique development goals, and to the social activity of gaining e-literacy in the community. This was supported by appropriate material resources in terms of 630 telecentres in the pilot district, and vigorous grassroots campaigning to mobilize communities. The e-literacy activities in the centres were complemented by various non-IT based activities such as clubs for women and children.

The later phases of the project are much less clear in terms of their achievement of digital inclusion goals. The attempt was made to symbolically link the Akshaya telecentre project to the stimulation of entrepreneurial activities. However, the selling of goods and services was hindered by a lack of appropriate material resources in the form of a legal selling entity or clear industry-government communication channels. Similarly, symbolic linking to key sectors such as health was hindered by a lack of institutional linkages between the local health planning apparatus and the telecentre initiative. The extension of the project outside the Malapurram district is still in its early days, but there are initial concerns that the symbolic linking of the extension project to entrepreneurship rather than to social development goals, and the relatively low level of material resource in terms of telecentre coverage, may compromise digital inclusion goals in favour of supporting the selling activities of entrepreneurs.

4. SIYABUSWA PROJECT IN MPUMALANGA, SOUTH AFRICA

Our second case study concerns a long-term community-based development project in the small town of Siyabuswa in South Africa, where we will focus on the ICT-based interventions. The case description which follows is based on an action research study

involving Dewald Roode and colleagues from the University of Pretoria over a period of ten years starting in 1994. As with all action research projects, data collection involved the continuous documenting of direct participant action linked to more reflective processes of discussion, reading and writing. More details of the project and the associated research methodology can be found in Roode et al (2004) and Phahlamohlaka et al (2007).

4.1 Case description

Siyabuswa is a small town in a rural area, situated about 130 km north-east from Pretoria in the Mpumalanga province of South Africa. In 1994 the Department of Informatics at the University of Pretoria became involved in SEIDET, the Siyabuswa Educational Improvement and Development Trust, a community initiative started in the early nineties by a small number of individuals, led by a member of the local community, Jackie Phahlamohlaka. The project provides supplementary tuition on Saturdays to secondary school learners in selected learning areas.

The first ICT intervention at Siyabuswa was early in 1998 when the Department of Informatics and a private company established a computer facility with 27 computers at SEIDET. Since then, all students have been required to complete a computer literacy course and regular use is made of the facility during teaching. The SEIDET Board also issued a request to consider ways of involving the community of Siyabuswa by making a computer literacy course available to the people of the community. The first local computer literacy course for people from Siyabuswa started in October 1998. This was first offered via satellite from the campus of the University of Pretoria, but since March 1999 has been presented by SEIDET teachers at Siyabuswa. Dating from 2000, the SEIDET computer training facility was operated as a franchise of a Pretoria-based private training company. In 2006 the local facility acquired the rights to the training material of the company, and it now operates totally independently.

What has been achieved at Siyabuswa has been of great value to the local community. The training facility is owned and operated by members of the community, and provides highly valued services to a broad spectrum of community members. Many of the graduates have found computer-related employment. Some are exploiting their newly acquired skills, and their activities show all the signs of developing into small businesses. The facility is self-sustaining, and receives no outside funding. After eight years of continued, albeit slow, growth, the facility and what it stands for has become an accepted fact within the Siyabuswa community.

The early success at Siyabuswa led the primary local actors to expand activities to nearby KwaMhlanga and Vaalbank, where training facilities were established, as offspring of the SEIDET facility, in 1999 and 2000 respectively. It was therefore quite natural to consider further expansion of the SEIDET concept into the deeper rural areas of Mpumalanga, which reach up to the Swaziland border. In October 2001, the private training company referred to earlier, and researchers who had been involved with SEIDET, launched the Sustainable Development Initiative (SDI), aimed at building human capacity in rural communities through the careful and planned use of ICTs.

The basic idea of the SDI was to establish computer training facilities, similar to that of SEIDET, as development hubs in selected rural communities. The SDI was planned around four phases: first, the selection of suitable candidate trainers; second, the training of the selected candidates; third, the identification of suitable rural communities in Mpumalanga; and fourth, the empowerment of these communities through the establishment of local

computer training facilities with the assistance of the employed trainers. Funding was obtained from a central government agency, and the private company provided the required computer and office infrastructure for each of the planned facilities. The aim was to involve the community deeply in the whole undertaking, and to let them benefit financially from the facilities. The private company would only gain through the royalties payable on the use of its training material. Three communities were selected and training started during 2003. Although the projects in the different communities started off with great local enthusiasm, progress slowed down when support from the provincial Department of Social Development did not materialize. This led to a decrease in support from the local communities and, ultimately, to the demise of the whole SDI project by the end of 2003. While some success was achieved, mainly in the sense that an awareness of computers, the internet and what ICTs could mean for a community had been created, the project failed to reach its main objectives, namely to build human capacity and to establish development hubs in communities.

Reflection on the relative failure of the project suggested a number of reasons. First, it is very difficult to establish a sustainable facility in communities that are so poor that people cannot afford to pay for ICT training, which was the case for two of the communities. A facility in such communities should, if it is to become a development hub, assist with the inflow of financial resources into the community, and needs to be sustained through outside funding until such a situation is reached. Second, the importance of developing a relationship of trust between the community and the "outside" developers cannot be overstated. The trainers who were employed in the communities were not local to those communities and their motives were suspected to be primarily financial. While deep rural communities are quite isolated, most of them have experienced attempts by 'outsiders' to profit from them. Communities were also perplexed about the motives of the initiators of the project, and the question 'why are these people doing this' was insufficiently addressed in briefing sessions with community leaders. A final reason pertains to the failure to align the project with regional and governmental activities. Regular feedback sessions were arranged with the Department of Social Development of Mpumalanga, but each time reporting to a different official. Building of a relationship of trust was therefore difficult, but more time should, therefore, have been spent on this.

4.2 Case analysis

The symbolism of the SEIDET initiative was a project for and by the Siyabuswa community. Although staff from the University of Pretoria were involved throughout, a key lead figure was a member of the local community who had gained a higher education and wished to contribute to the community from which he came. The social activities which were developed over a period of more than ten years started with additional secondary school teaching but further developed through ICT initiatives and more general computer literacy courses. In terms of material resources, the long-term institutional support of the University of Pretoria can be considered crucial in maintaining activities until they were self-supporting.

With respect to the later SDI initiative in other communities in Mpumalanga, the symbolism of 'for and by the community' was never established. The project initiators and the trainers were outsiders whose motives were often suspected. Some social activities around IT literacy did take place, but these fell away to nothing in the end. In terms of material resources, poor enrolment of government support meant that the inadequate resources of the local communities themselves were insufficient to maintain the viability of the project.

5. TELECENTRES IN SÃO PAULO, BRAZIL

Our final case study concerns telecentre projects in the city of São Paulo in Brazil. The case description which follows is based on a long-term research project, starting in 2001 and continuing to the present time, carried out by Nicolau Reinhard and colleagues from the University of São Paulo. The research project used an actor-network theory framework, with data collection involving extensive participant observation of telecentre projects, and many interviews with government officials, telecentre managers and telecentre users. Additional data sources have included surveys of telecentre users and press reports. More details of the telecentre projects and the research methodology are given in Macadar and Reinhard (2006) and Macadar (2004).

5.1 Case Description

São Paulo is a mega-city with a population of about 17 million people. There are many poor people in the city, with roughly half the population being in the lowest socio-economic classes. These classes are the main target of digital inclusion programs, including telecentre projects. Such projects have proliferated over the last five years and there are now hundreds of working telecentres throughout the city. These fall into three main categories. Community telecentres are normally installed and co-ordinated by government agencies, but are located in neighbourhood community centres and operated by community leaders. They provide free internet access and digital literacy courses. Centrally located government telecentres are situated in places such as government buildings and public service centres, and they provide convenient access to e-mail and e-government services, mostly to the working adult population. Usage rates tend to be very high for these centres, particularly for the large centre in downtown São Paulo. Finally, there are a range of special purpose telecentres, set up by government, private donors or non-governmental organisations (NGOs) and located in places such as schools, prisons, and NGO offices.

An important program with respect to community telecentres is that set up by the City of São Paulo. There are currently 148 such centres at the time of writing. Surveys have shown that the majority of the users of these telecentres are teenagers with only about 20% of the users being over 25 years of age. They are mostly frequent users of the telecentre, with some teenagers, either studying or unemployed, spending much of their day at the centre. Most of the usage time is spent searching for information, communicating through services such as e-mail, taking IT literacy courses and playing games. The telecentre program is still very active, with new telecentres being installed on frequent basis, and with an increased emphasis on the provision of IT courses for the centre users.

However, despite the vigour and expansion of the City of São Paulo telecentre programme, there is a significant gap between the original espoused social development goals of the programme and actual usage patterns. The initial plan for the centres envisaged having local communities and civil society organisations teaming up with telecentre management to provide content and services through the internet of direct relevance to the community as a whole. This has not happened. Local telecentre supervisory councils have been abolished with some of the reasons given by local government officials being that the councils had become 'politicised' and that 'members tried to take control of the telecentre to serve their personal interests'. It is worth noting that the current political party in power in São Paulo is centre-right and that many local activists at community level are members of the opposition Labour Party.

Although the goal of the local government telecentres may have shifted, the program is still high on the political agenda of the mayor and his party. There is a prevalent political discourse throughout Brazil as a whole which favours the installation of telecentres for free

access to the internet and other computing resources. In addition, since the community telecentres in São Paulo serve mostly young people, they are seen as a way of 'keeping the youngsters off the street' and thus as a tool to reduce violence. No politician would dare to deactivate a public telecentre since this would be viewed as a hostile political act towards that local community, and would likely result in serious action to oppose it. An increasingly common model for the community telecentres involves a partnership between local government and an NGO in particular priority areas. Local government funds pay the salary for a local co-ordinator, a technical support person and a limited monthly expenses budget. The partner then provides all other resources, including additional personnel. Staff who are recruited through an NGO avoid City Government employment liability, but one negative effect of this is that turnover of personnel is high.

The best-known programme of special purpose telecentres is that run by an NGO called the Committee for the Democratization of Information (CDI). This is a highly regarded digital inclusion programme with over 700 centres throughout Brazil and 175 centres abroad. Their primary goal is social inclusion of the less-advantaged in society, with digital literacy courses as their main activity. They rely mostly on donations from companies in the form of money and recycled computers. They have partnerships with local NGOs and city governments, providing management and teaching competence to their partner operators. In order to utilise the recycled computers donated by companies, they have set up technical laboratories where they repair, refurbish and cannibalise used computers. These laboratories also help their trainees to become competent as computer technicians. CDI's original goal was to have users pay small fees to cover operational costs, but users are becoming increasingly unwilling to pay this fee. This calls into question the financial sustainability of the centres, which remains an open issue for CDI's management.

5.2 Case Analysis

The initial symbolism for the City of São Paulo telecentre programme revolved around community-led digital inclusion. However the social activities that this stimulated primarily involved only one subset of communities, namely unemployed or underemployed young people. Although the programme was relatively well supplied in terms of material resources such as computers and centre staff, little resource was made available to support the build-up of broader community-based activities. The symbolism of the project has shifted in recent years, partly due to a change of local government, towards keeping the young and poor off the streets. The issue of the provision of material resources has also shifted towards partnering with NGOs, although this has resulted in some negative consequences such as high staff turnover.

The CDI programme has the symbolic goal of social inclusion through digital literacy. Social activities supported, in addition to digital literacy training, have also included the training of computer technicians. The material resources of CDI have been supplemented by partnering with companies, resulting in donations of money and equipment. Despite this, issues of financial viability remain. The centrally-located government telecentres have the symbolism of delivering e-government services to the people. They have been successful in this respect, with high usage rates, although the typical user is a working adult who is not from the poorest parts of the City population. Resources have been good for these initiatives, but it is questionable whether they make a significant contribution to digital inclusion goals.

6. DISCUSSION

The three cases which we have described and analysed above demonstrate a wide variety of experience and a complex mix of success and failure of digital inclusion projects. In addition, they show that such projects change significantly over time. Early successes may not always be sustainable or scalable, but on the other hand persistence sometimes brings rewards after initial difficulties. Although the case experiences are each unique in themselves, they also have some common features. In particular, we discuss below four key processes of institutionalisation derived from our field data and analysis. These processes were important in all our case projects, and we would argue that they are of relevance to digital inclusion projects more generally.

A first institutionalisation process for digital inclusion projects involves *getting symbolic acceptance by the community* who are the targets of the project. This was achieved in the e-literacy projects in Kerala by the linking of the projects to Kerala's development philosophy, partly through vigorous grassroots campaigning. However, acceptance became more problematic later when the goals shifted towards stimulating entrepreneurial activity. The project at Siyabuswa was highly successful in gaining community acceptance being seen as both by and for the people, not least through the leadership of a person from the community itself. In contrast, the later extension project failed to gain acceptance in the new deep rural communities with considerable suspicion about the motives of the 'outsiders' who were promoting the project. Community acceptance of the City of São Paulo telecentre initiatives was an initial goal which was only partly achieved, with the projects continuing in the communities, but with increasingly limited community participation.

A related process is *stimulating valuable social activity in the relevant social groups.* The e-literacy projects in Kerala were very successful in this respect with the widespread participation of groups such as Muslim women who are often part of the socially excluded. Similarly, although on a narrower scale, computer training at Siyabuswa spread from school children to the community at large. This was also the objective at the wider deep rural project, but this was not achieved. The telecentre projects in São Paulo have succeeded in stimulating activity in certain groups such as the underemployed young and, through the centrally-located government telecentres, working adults in the City. However, with some limited exceptions, many of the socially excluded in the poorer communities have not been reached through these projects.

A third process of great importance in sustaining digital inclusion projects over time is *generating linkage to viable revenue streams.* The later attempts to do this in Kerala have been problematic with only limited success in generating entrepreneurial revenue, and some concern that the expansion of the entrepreneurial symbolism approach to districts outside Malapurram may compromise social inclusion goals. The Siyabuswa project has, in the end, become self-financing, but it is worth noting that this would most probably not have been achieved without the continuous long-term backing of outside agencies such as the University of Pretoria. Revenue remains a problem for the São Paulo telecentres aimed at the digitally excluded, including those under the auspices of the City government. However, some innovative models are being tried including partnerships with NGOs and, in the case of the CGI projects, with donations in cash and kind from commercial organisations.

A final process which was important, and often crucial, in all the case studies was *enrolling government support.* This was achieved successfully in the Kerala case in the e-literacy phase through the strong symbolic linking of the project to the state government's espoused development goals. It is currently more problematic in the entrepreneurship phase with some potential conflict between the state government's approach and wider social inclusion goals. The linkage to government was not that important during the development of the Siyabuswa

project, due to its relative small scale and the backing of other agencies. However, a key reason for failure of the later deep rural project was inadequate government backing, and the project initiators recognise that more effort should have been devoted to achieving government support. The enrolment of political forces in the São Paulo case study has been a crucial feature throughout, but this can be something of a mixed blessing. For example, the political views of the current centre-right government of the City of São Paulo often conflict with those of local community activists, resulting in disagreement concerning the goals and methods for digital inclusion projects. Various partnership models between outside agencies, government and NGOs are being tried, but the outcomes of these experiments are yet to be clear.

7. CONCLUSIONS

This paper has analysed three digital inclusion case studies through the theoretical lens of institutional theory. We have not undertaken a full institutionalist account of each of the cases, although this would be a worthwhile exercise. Rather, we have selected a simple theoretical schema based on institutional theory as a way of highlighting similarities and differences between the cases. Implications were derived in the previous section concerning key processes of institutionalisation which need attention in all digital inclusion projects. We hope that other researchers will wish to use and extend our approach elsewhere.

In terms of methodology for such research work, it is important to note that in all three of the cases there was major change over time, and understanding of the projects would have been much more limited by a snapshot approach. Thus, we would suggest that longitudinal research is particularly appropriate for research on digital inclusion projects. This supports the more general argument in Walsham and Sahay (2006) that more longitudinal research is needed on issues such as the scalability and sustainability of ICT projects in developing countries.

With respect to policy implications, we would argue that our work shows a clear need to improve the practice of evaluating digital inclusion projects in developing countries. Rather than building a framework for evaluation which focuses solely on impact, we suggest the need for approaches which try to understand key institutionalisation processes over time, and which document these processes in some detail. Digital inclusion projects are complex in nature and need to be better understood in terms of their benefits and problems. We hope that our paper makes a small contribution to such increased understanding.

8. REFERENCES

Avgerou, C. (2002) *Information Systems and Global Diversity,* Oxford University Press, Oxford.

Bada, A.O. (2003) 'Strategic and institutional response to the digital challenge: a perspective on how global IT trends are expressed in developing countries', in *The Digital Challenge: Information Technology in the Development Context,* S. Krishna and S. Madon (eds), Ashgate Publishing, Aldershot, 279-294.

Castells, M. (1998) *End of Millennium*, Blackwell, Oxford.

DiMaggio, P.J. and Powell, W.W. (1983) 'The iron cage revisited: institutional isomorphism and collective rationality in organizational fields', *American Sociological Review,* 48(2), 147-160.

Greenwood, R. and Hinings, C.R. (1996) 'Understanding radical organizational change: bringing together the old and the new institutionalism', *Academy of Management Review,* 21(4), 1022-1054.

Harris, R.W., Kumar, A. and Balaji, V. (2003) 'Sustainable telecentres? Two cases from India', in *The Digital Challenge: Information Technology in the Development Context,* S. Krishna and S. Madon (eds), Ashgate Publishing, Aldershot, 124-135.

Hunt, P. (2001) 'True stories: telecentres in Latin America and the Caribbean', *Electronic Journal of Information Systems in Developing Countries,* 4(5), 1-17.

Kanungo, S. (2003) 'Information village: bridging the digital divide in rural India', in *The Digital Challenge: Information Technology in the Development Context,* S. Krishna and S. Madon (eds), Ashgate Publishing, Aldershot, 103-123.

Macadar, M.A. (2004) *Digital Inclusion in Brazil: The Telecentre Management Process,* unpublished PhD thesis (in Portuguese), University of São Paulo, Brazil.

Macadar, M.A. and Reinhard, N. (2006) 'Governance and management in the São Paulo telecentre network', *Information Technology for Development,* 12(3), 241-246.

Madon, S. (2005a) 'Evaluating the developmental impact of e-governance initiatives: an exploratory framework', *Electronic Journal of Information Systems in Developing Countries,* 20(5), 1-13.

Madon, S. (2005b) 'Governance lessons from the experience of telecentres in Kerala', *European Journal of Information Systems,* 14(.), 401-416.

Meyer, J.W. and Rowan, B. (1977) 'Institutionalized organizations: formal structure as myth and ceremony', *American Journal of Sociology,* 83(2), 340-363.

Miscione, G. (2007) 'Telemedicine in the Upper Amazon: interplay with local health care practices', *MIS Quarterly,* forthcoming.

Oliver, C. (1992) 'The antecedents of deinstitutionalization', *Organization Studies,* 13(4), 563-588.

Phahlamohlaka, J, Braun, M, Romijn, H. and Roode, D. (2007) (eds), *Community Driven Projects: Success Determinants and Lessons – The Case of Science Education and Information Technology in Rural South Africa,* Van Schaik, Pretoria, South Africa.

Roode, D., Speight, H., Pollock, M. and Webber, R. (2004) 'It's not the digital divide, it's the socio-techno divide!', in *Proceedings of the 12th European Conference on Information Systems,* Turku, Finland.

Reilly, K. and Gómez, R. (2001) 'Comparing approaches: telecentre evaluation experiences in Asia and Latin America', *Electronic Journal of Information Systems in Developing Countries,* 4(3), 1-17.

Sahay, S. and Walsham, G. (2006) 'Scaling of health information systems in India: challenges and approaches', *Information Technology for Development,* 2006, 12(3), 185-200.

Salvador, T., Sherry, J.W. and Urrutia, A.E. (2005) 'Less cyber, more café; enhancing existing small businesses across the digital divide with ICTs', *Information Technology for Development,* 11(1), 77-95.

Scott, R.W. (2001), *Institutions and Organizations,* (2nd edition), Sage, London.

Silva, L. and Figueroa, E.B. (2002), 'Institutional intervention and the expansion of ICTs in Latin America: the case of Chile', *Information Technology and* People, 15(1), 8-25.

Trauth, E.M, Howcroft, D., Butler, T., Fitzgerald, B. and DeGross, J.I. (2006) (Eds) *Social Inclusion: Societal and Organizational Implications for Information Systems,* Springer, New York.

Walsham, G. and Sahay, S. (2006) 'Research on information systems in developing countries: current landscape and future prospects', *Information Technology for Development,* 12(1), 7-24.

Warschauer, M. (2003) *Technology and Social Inclusion: Rethinking the Digital Divide,* MIT Press, Boston.