

**SOUTH AFRICAN, RURAL ICT IMPLEMENTATION: A CRITICAL RETROSPECTIVE
APPLICATION OF LATOUR'S DUE PROCESS MODEL**

Jo Rhodes
8/1 Manns avenue
Neutral Bay 2089
jorhodes44@yahoo.com

ABSTRACT

The potential developmental role of ICTs can pressurise governments to engage in 'catch up' and 'leapfrog'. Consequently, analysis of the accompanying socio-political dimensions and risks can be, disastrously, neglected. This paper examines a specific technology implementation – a South African government sponsored telecentre- using Latour's Due Process model, an analytical tool grounded in Actor-Network Theory, where technology implementation is viewed as a symmetrical treatment of technology and society within a single collective. It is used here, retrospectively, to make sense of why the telecentre both failed to institutionalise within a successful actor-network, and, contributed to the destabilisation and partial destruction of a successfully established women's development organisation.

INTRODUCTION

History indicates that technological innovation is essential for human development and recently the debate regarding the efficacy of ICT, as a development tool, has been robust amongst academics, practitioners and policy makers. Current initiatives seem to focus on infrastructure development and on expanding and delivering information from the 'core' to the 'periphery'. A substantial body of literature outlines potential benefits and roles of the new technology in development (World Bank 2001, 2000, UNDP 2001, Maddon 2000, Laudeman 2003, Dalsgaard 2001, Chapman and Slaymaker 2002, Heeks 1999a, 1999b, Morales-Gomez and Melesse 1998). Yet, the jury has not yet returned its verdict on the matter of ICTs and development in remote African rural locations. Many reasons are cited for the unsuitability of ICTs to African rural development, such as the lack of connectivity, low tele-density, limited Internet access, scant ICT and computer education, limited literacy, and minimal human and technological networks. Nevertheless, it is considered axiomatic that if developing countries turn their back on technological innovation, they may condemn themselves to continued marginalisation.

NEPAD (the New Partnership for African Development) is targeting ICT as a priority sector for the achievement of sustainable development in Africa in the 21st century. Its' objectives are to diffuse ICTs and achieve E-readiness for all countries in Africa. This intention is paralleled by The Southern African Development Community ICT Policy and Regulatory Support Program (SIPRS), which aim to advance policy harmonization by producing model policies in key areas, including, human resource development and information sharing. It is anticipated that the SIPRS project will lead to greater liberalization of the ICT sector and foster a competitive market within the region.

Whilst popular development dialectical reasoning points to the promise of significant economic and social transformations, as a result of the new technology and ICT applications, the paradox remains that minimal success is observed to support the premise. This however, seems not to slow down the growing trend to view ICTs as a panacea for underdevelopment, which stimulates many unrealistic and unrealizable hopes and expectations. This in turn puts mounting pressure on government and development agencies to introduce them before adequately understanding the social context and dynamics into which the ICT is implanted. This urge to play 'catch-up and leapfrog' often results in inadequate and insufficient assessment of the risks ICTs pose to sustainable development (Skuse 2001). Few successes are identifiable and many projects end in failure as strategists, academics and policy makers' struggle with the conundrum of ICT bounded development issues.

This paper further explores ICT, as a development tool in a specific context, through examining the case of a telecentre implementation in a remote rural³ South African community. Using Latour's

³ In most countries, this term indicates a low-density population or a dependence on farming.

However this is not applicable in this sense as in apartheid South Africa many areas defined as rural were areas without basic human services such as electricity, water and sanitation with a high population density of displaced (mostly through forced removals) people with no economic base.

Due Process model the findings of this study highlight how complex adversarial development conditions can impact on technology implementation. The paper, including the introduction, is in five parts. Part two discusses the RWA telecentre development context. Within this section the RWA organisation and the prevailing, historical and present local development conditions framing the ICT initiative are described. Part three, is a retrospective analysis of the telecentre implementation process using Latour's Due Process model, a practical tool grounded in Actor-Network Theory. Part four discusses the research conclusions and the paper finishes with a discussion of forthcoming research.

THE RWA TELECENTRE DEVELOPMENT CONTEXT

This section describes the RWA organisation (the entity assigned the responsibility for operating the telecentre) and discusses the complex socio-political context within which local economic development in this area is forged. It concludes with a description of the RWA telecentre.

The RWA

Sister Lydia Pardeller of the Franciscan order of nuns founded the RWA, a Roman Catholic development initiative. In 1992 Sister Lydia was charged with locating the 'poorest of the poor' community in South Africa to facilitate improvement in the lives of women and children. Her search led her to the village of Apel, in Sekhukhuneland, 150 km South- East of Polokwane, formerly Pietersburg, the major town in the Limpopo Province (formerly Northern Province and formerly the Northern Transvaal).

The RWA is regarded as a rare example of a successful women's development organisation in a region beset with political complexity, instability and morbid conflict. It has grown, in a short space of time, into a modern, legally incorporated, highly resourced (money, people, skills, equipment, infrastructure) organisation with a successful track record of achievements (Rhodes 2000). Within 4 years of inception the RWA self-help projects eradicated decades of both child malnutrition-caused mortality and hunger, and generated a small income for some of its members. Despite this very commendable achievement, substantial economic growth and prosperity eludes these rural communities. Rural poverty remains a major problem and access to markets remains stagnant.

The prevailing local development conditions

The RWA emerged from a turbulent, conflict-ridden space where, historically, development has been, and still is, highly politicised. This poorly developed rural area has a long tradition of revolt and underdevelopment. The former transitional local government set up after the first democratic election in 1994 has, only recently, become a democratically instituted municipality. The area is designated a special presidential area, prioritized for integrated rural development with a keen focus on gender empowerment.

The multiple layers of complexity, which underpin local development, are represented by figure 1.

Layers of Complexity

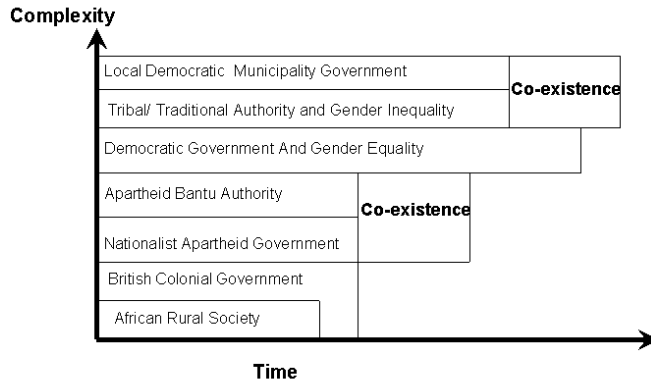


Figure 1. Layers of Complexity

Figure 1 reveals only a partial vista: added to this situation is a legacy of generations of poverty, deprivation and violent turbulence, compounded by years of debilitating drought. An age-old conflict between the surrounding villages endures, as over the last 100-year period there has been no dispute settling mechanism outside of a fractious paramountcy within a fractured community (Delius 1996). The various chiefs have been legitimized at different times in history, some by apartheid Bantu authority and some, in the past and most recently by the current African National Congress government. Whilst the South African government is attempting to craft a modern state modeled on liberal principles, in Apel (the Head office of the RWA), everyday life is lived with a deep-rooted fear of malicious supernatural forces. The new democratic and gendered government dispensation is superimposed upon historical layers of other forms of (conflicting) government and belief systems. At present two conflicting models of government (traditional and democratic), underpinned by different belief systems, co-exist in a state of heightened tension. The new South African constitution abolished Bantustans, whilst at the same time protected the existing status of traditional /tribal authorities as well as enshrining a democratic bill of rights. Equal rights for women conflicts with traditional authority but both are expected to function alongside each other.

Hunger, poverty and unemployment (all pre-existing conditions, which accompanied the transition from Apartheid into democracy,) create jealousies that can quickly turn to anger and vengeance and this can translate into witchcraft accusations. Kohnerts' (2003) research found that witchcraft related violence increased dramatically during the transition from Apartheid rule to democracy. In the 1990's in Limpopo province, where the RWA is sited, the death toll from witch killings was in the 1000's. Apart from the immeasurable harm that 'witchcraft violence' inflicts on individuals and their families it also destabilizes the social, economic and political setting of a whole region, and endangers the legitimacy of the new post-apartheid government. In 1996 the Limpopo ministry of safety and security created a commission of inquiry into witchcraft, violence and ritual killing. The situation necessitated the provision of a witch sanctuary (in Helena village also known as Garamase) 35 km west of Polokwane city, where hundreds deemed guilty and in danger of being killed by mob action took refuge. The Commission on Gender Equity (CGE 1999, Ralushai et al. 1996) requested that witchcraft related violence be declared a national priority crime, resulting in the 1998 Thoyandou declaration of "ending witchcraft violence" bill.

In Apel, the village in which the RWA operates, disturbances in the social system (such as murder and theft) are often attributed to evil people and evil power. The residents of this area exist in a space of spiritual insecurity where the Sangoma (a spiritual doctor, a medium of sacred or transcendental power) plays a major part in harmonizing society and in so doing reinforces traditional authority. Witchcraft beliefs have serious repercussions for conflict resolution, a fundamental base for sustainable democratization and development. Secondly, witchcraft accusations are historically a form of gender violence and control, both of which have serious

implications for gender development. As women are more vulnerable to accusations than men, and as vulnerability increases with age (Gorman and Heslop 2002), gender development and ICT development occurring within a gendered organisation is particularly at risk from this phenomenon.

The RWA telecentre

Throughout Africa, telecenters have been viewed as the primary vehicle to provide ICTs (Benjamin 2000). Telecentre, is a loose term used to describe a place where public access to computers, training and the Internet is available along with a number of business services such as typing and photocopying. The telecentre programme is heralded as one of the most important initiatives of the 1990s in ensuring that developing communities can make use of modern ICTs, and to link micro and small enterprises with timely market information (NTCA 2000).

In South Africa, telecentres were installed in remote rural locations by the USA (Universal Service Agency), a statutory body established under the 1996 telecommunications Act responsible for ensuring universal access to all telecommunications services for disadvantaged communities in South Africa. This programme committed to provide sustainable telecentres and socio-economic information services to disadvantaged communities and in line with this objective awarded the RWA a telecentre.

The RWA telecentre equipment, installed in 1998, included 4 computers (two with Internet provision), 6 telephone lines and a photocopier. Two RWA members, appointed as telecentre managers, received 6 weeks training before being charged with the responsibility of building a financially viable business. Since then (in the RWA telecentre) there has been minimal support and guidance. Unfortunately the telephone lines were to stay unconnected for 4 years due to a dispute between various government departments and Telkom (the South African monopolist telephone provider).

Most technology transfer, at the local African rural level, is donor led. Baark and Heeks (1998) study of the process of donor funded technology transfer found that donors are good at shifting boxes from the West to developing countries, but making those boxes operational at the other end is problematic and often they fail. They attribute this to the scant attention paid to the fact that technology is more than just equipment and has a surrounding shell of infrastructural requirements and technical and managerial skills. Often these necessary elements in the surrounding shell are missing. The USA Telecentres are heavily dependent on donor support. Although these projects stress community participation and sustainability, to date none have proven that they can be self-sustaining post external funding. Of the 64 USA telecentres only three are functional and only four have on-line Internet (Benjamin 2001).

In April 2002, a series of traumatic events (the murder of the RWA telecentre security guard, accusations of theft and nepotism amongst the RWA members, the theft of valuable agricultural equipment and the reluctance of the police to act) precipitated witchcraft accusations from some of the RWA garden projects members. These events opened a window for traditional authority to gain a foothold in a gendered organisation through the members' request for a sangoma to harmonize the situation. This realignment of interests in the RWA actor-network and the inclusion of other actor-networks, assisted the traditional authority, the chief, to disparage the legal RWA dispute settling mechanism and, giving credence to witchcraft accusations, he attempted to take control of the RWA. This resulted in the stalling of many of the RWA development projects and in the RWA management team being forced from their office through violence and intimidation. A consequence of these events was the closure of the RWA telecentre, as a day after the telecentre security guard was murdered the USA representative removed all equipment from the telecentre. At the time of writing (Jan 2004) the telecentre was still inoperative.

The next section retrospectively applies Latours' Due Process model to the RWA telecentre implementation to analyze why the telecentre failed to institutionalize (that is, to become an accepted and stable fact). The relationship between society and technology may be conceptualized in many ways along a continuum ranging between technological determinism and social constructivism, each with its own bias and conceptual difficulties. The Due Process model is considered particularly relevant here as it treats technology and society symmetrically and focuses on the set of elements that influence, shape or determine an action such as technology implementation.

THE DUE PROCESS MODEL AND TELECENTRE INSTITUTIONALISATION

There are at least three ways to consider technology implementation. (1) Technological determinism, where technological development is viewed as separate from and outside of society. (2) Technological constructivism, where technology is shaped by social forces, implying that technology in itself, plays no role and (3) the sociotechnical view which links social and technical systems together, but still treats them independently of each other. McMaster, Vidgen and Wastell (1998) suggest that none of these lenses offer adequate opportunities for a true sociotechnical understanding as they treat technology and society asymmetrically, as two single collectives, subject to different languages, meanings, beliefs, analysis and interpretive tools. This approach creates two unbridgeable collectives and the subsequent collapsing of these two single collectives into a sociotechnical whole is artificial. A more valuable way of viewing technology implementation is through a symmetrical treatment of technology and society, within a single collective using Actor-Network Theory (Law and Hassard 1999, Callon 1999, Callon 1991, Latour 1987, Callon and Law 1986). Actor-Network Theory (ANT) regards technology and society as fundamentally equal entities subject to symmetrical treatment.

ANT is an antipositivist epistemology as it observes differences in a network and not the concepts of right and wrong. It proposes a shift away in emphasis from the primacy of the human actor, considering him/ her as just another actor in the network. An actor-network is a description of the way things are and is comprised of a series of heterogeneous animate and inanimate elements that have been linked to each other over time. According to Latour (1997), an actor-network is a series of translations of interests by the actors. The actor-network is not reducible to the actor (human or non-human) alone and such networks are unreliable as they can become unstable with the entry of new actors and the desertion of existing actors. A simple example of an actor-network is an organisation such as a university, where the actors will include (but not be limited to) entities such as chancellors, professors, lecturers, students, constitutions, policy documents, reporting procedures, computers, enterprise systems, campus, the Internet, physical infrastructure and government legislation. A change in this network (for example adding actors in, subtracting actors, or reconfiguring the hierarchy of actors) can reveal that power effects are relational and that ordering is contestable. An actor exists in context and juxtaposition to other actors where each modification affects both this network and the networks of the actors themselves. If for example, a new chancellor is installed, or a new policy implemented, this change in the actor-network will often precipitate many others. The existing actors in the network will affect the outcome of the change. Sometimes, these changes are unintended, unanticipated consequences referred to as the Ouroboros effect and depicted as the serpent devouring its own tail, a metaphor for how some of the best attempts to solve problems come back to bite.

ANT began appearing, with increasing frequency, in the Information Systems literature during the last decade (Macome 2002) to track the formation of facts, also referred to as black boxes, within heterogeneous networks of aligned interests. This is an active, critical process through which specific candidates for admission (technical and social) into the network are either accepted or rejected. ANT perceives facts or black boxes as being the result of the strengthening of claims and alliances through the enrollment of additional actors into a network; this perspective presumes that facts are constantly transformed (translated) as the network lengthens across time and space. 'A major focus of the theory when applied in particular contexts is to try to trace and explain the processes whereby relatively stable networks of aligned interests are created and maintained, or alternatively, to examine why such networks fail to establish themselves. Successful networks of aligned interests are created through the enrollment of a sufficient body of allies, and the translation of their interests so that they are willing to participate in particular ways of thinking and acting that maintain the network.' (Walsham 2001:46).

The Due Process model, grounded in ANT, is a practical, valuable analytic device used to overcome the mammoth complexity involved in investigating both human and non human-network processes. These actors affect both the creation of black-boxes (extant uncontested facts) and the degree of stability and irreversibility in the actor-network. The application of the model is useful in forcing a rethink of issues before an ICT implementation takes place (or, lamentably, retrospectively to make

sense of a technology implementation outcome). In proactively planning for the introduction of a new ICT into a community or organisation the Due Process model is used to observe the existing actors in the network and to systematically explore the factors that may secure a successful outcome (referred to as a black-boxed and irreversible technology).

The Due Process model applied here follows the McMaster, Vidgen and Wastell’s (1998) and the Roode (forthcoming) approach. It is used retrospectively to make sense of the process of installing a telecentre into a remote rural African community, using a woman’s development organisation as the embedding mechanism.

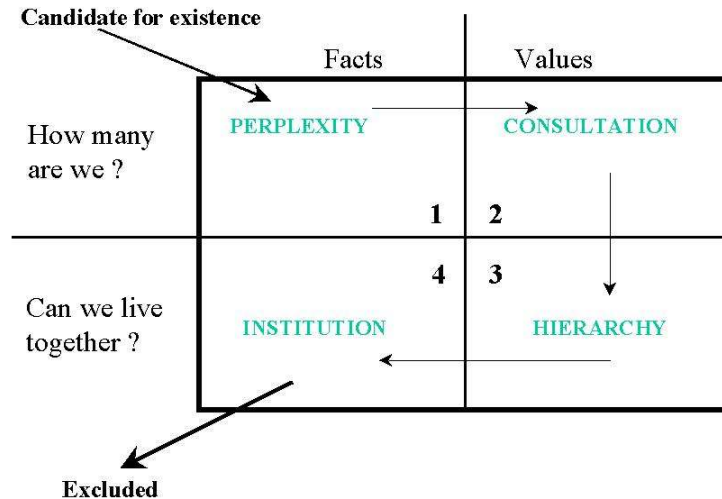


Figure 2. Due Process Model -After Latour 1998 (McMaster, Vidgen, Wastell, 1998).

The model has four parts as illustrated in Figure 2 and discussed briefly below. Whenever new candidates for existence (actors), which can be facts, claims, technologies, policies or people etc, are introduced into a network they increase the existing levels of uncertainty adding to the *perplexity* of the network. *Perplexity* revolves around the issues of confusion, grasping meaning and intent and thinking clearly and logically. If perplexity is insufficiently addressed a false sense of understanding predates the next stage of the model, making *Perplexity* settlement crucial to the usefulness of all three following components of the model. Anecdotal evidence is plentiful in the interchange between rural, illiterate people and their sometimes ‘magic bullet’ conception of ICT capability. Because these perplexities are often not logically addressed, unrealistic expectations can later create tensions that contribute to conflict. In some cases the self interests (for example the donors performance objectives set by government ministries) of the actor supplying the telecentre conflict with the timelines and debate necessary to achieve sufficient perplexity settlement within the recipient actor-network.

Consultation is a deliberation between parties where advice and opinion is sought and given and is a requirement to confer legitimacy on the new candidate for admission (actor). *Consultation* involves assessing the suitability of the new actor’s entry into the network. Different consulting styles and positions will impact significantly in this phase. The power relations between the telecentre supplier and the community recipient will often be asymmetrical, which biases the consultation, particularly

in a remote and impoverished locale where any change is almost universally perceived as an improvement to existing conditions. Questions to be addressed in this phase include, who is represented on the negotiation team, is there sufficient and authentic negotiation happening, and are the concepts adequately understood by all appropriate and necessary parties to ensure authentic negotiations.

Next, debate is encouraged on the relative importance of the candidate in the hierarchy of the network. *Hierarchy* involves organizing elements into a ranking, with each rank subordinate to the one above it. This is the process of understanding how the new actor will be positioned in the network rendering it acceptable to the current network configuration. An example of debatable issues include: where will the telecentre be positioned in the organisation, what resources will be allocated to it, will other projects lose resources in the reallocation, does this require new alliance building, will the new configuration be supported across the organisation.

This process of perplexity, consultation and hierarchy does not happen sequentially and linearly and all concepts are used in all parts of the model at some stage. For example, new hierarchical decisions will require further perplexity settlement and negotiation. These three parts of the model translate (or not) the candidate of existence into the *fact* (black-box) and imbue it with the values required for it to be accepted into the network. This increases the likelihood of the *fact* proceeding into the fourth phase - institutionalization (which means the innovation is accepted into the network as an unquestioned and supported fact). If it is not successful, the actor (the telecentre) is rejected from the network but this does not preclude it from returning at a later stage to attempt a readmission into the network. The Due Process model is applied below to the RWA telecentre, the new candidate for admission into the RWA actor-network.

The telecentre, as a candidate for admission in the RWA actor-network, introduced many new perplexities including but not limited to the following. What is a telecentre? What will it do? How will it do it? How is it used? Who will use it? How many will use it? Who will pay for the services offered? How much will they pay? What will they pay for? What is affected by its use? What equipment will it have? What type of change will it drive in the community? What skills will be required? Who will provide these skills? To who will the skills be provided? Why will people use these services? What difference will it make to their lives? How will it reduce poverty? Minimal debate around these perplexities occurred around the telecentre, as a new candidate for admission into the RWA actor-network, as the telecentre supplier (the USA) had a preset plan dictating the telecentre function. Other related RWA organisational issues left unanswered included the following: Is the telecentre a development initiative? How will it enhance development? Is it a business? Is it both? How will we blend business and development into a meaningful hybrid? Where are the limits to blending business and development? What importance is the telecentre to the RWA? Does it fit into our strategic vision? Where does it fit? How does it fit? How can it improve our work? How can it help us access more profitable markets? Who will show us how to use it? Little discussion occurred regarding the latter perplexities and limited consultation happened as to how the telecentre would operate and how it would fit into the wider community. The central role of the telecentre became an MS Word software training unit.

The USA, using a "one size fits all" approach unilaterally decided on equipment needs, on how the telecentre would be managed and who would own it. It was painted in the distinctive USA colors and called the USA telecentre. A contract was drawn up declaring the RWA the legal owner of the telecentre; this however proved to be a false claim as the USA unilaterally removed all of the telecentre equipment four years later, in complete contravention of the existing legal contract, effectively destroying the telecentre operation.

The legitimacy of the RWA candidature as the telecentre owner was unexamined in relation to other possible contenders, nor were the potential vulnerabilities relating to gender owned ICT initiatives in the local traditional authority hierarchy debated. This was particularly remiss in light of the current and new changes to the political landscape (the new South African post-Apartheid constitution) that legislated for gender equality whilst expediently maintaining gender-opposed traditional authority in the locality. Previous development failures in the area remained unexamined despite the turbulent history of former development initiatives in the area. The choice of the RWA as the telecentre beneficiary seemed, superficially, a simple and workable option for the USA, with its impressive track record of development successes and its eligible building to physically house the telecentre in.

Deleted: .

The USA, in its race to achieve the objectives of its own actor-network (the department of communications) to implement 64 telecentres by a particular date and report back to the minister of Communications, neglected to adequately consider the particular RWA socio-political factors.

The lack of debate and consultation around the latter issues resulted in situating the telecentre with little reference to the local habitat. Additionally, no vision of the position of the telecentre in the RWA actor-network hierarchy was formulated. As it was a requirement from the USA that the telecentre operate as an autonomous self-sustaining business, under strong USA branding, it was, in reality, detached from the RWA organizational strengths and influences. Little attempt to integrate and align the telecentre with the RWA development and business objectives was visible. Consequently, insignificant guidance on such issues as pricing, the provision of services, customer care, opening hours etc was given. Ominously, in its first RWA strategic planning workshop, in 2002, the telecentre was absent from the agenda.

Applying the Due Process model retrospectively, uncovers the fact-making trajectory and shows that effectively the RWA telecentre, as a candidate for admission into the RWA actor-network, was hurled from the moment of entrance practically into the fourth moment, institutionalization, leaping across the processes of perplexity, consultation and hierarchy.

If the innovation is accepted into the institutionalized box without first passing through consultation, the innovation may be rejected or excluded from the network. The processes of perplexity, consultation and hierarchy are important stabilizers and valuable in order to saturate the candidate for inclusion with the values and norms required for the candidate to institutionalize within the actor-network. Failure is defined here as an unstable network that is liable to destruction. This definition applied to the RWA telecentre candidature shows a major unintended consequence of this failure as the destabilization and perhaps destruction of the RWA actor-network.

SOME CONCLUSIONS

Preceding this section it is noted that there are no final narratives and no last instances. Stability and social order, according to ANT, are continually negotiated as a social process of aligning interests. This implies that the following conclusions can relate only to this specific analysis. Subsequent events in the RWA actor-network will dictate further (altered) conclusions.

Successful development, implementation and management of technology requires attention to a number of multi faceted, multidisciplinary considerations including: - planning philosophies, people, technology, organizational processes, products and services, financial constraints, environmental circumstances, structural change, behavioral change, and alignment of technological capabilities with the achievement of organizational goals and objectives. Often a long and social process precedes the successful introduction of technology.

The RWA telecentre was inserted into a complex socio-political context amongst a myriad of actors and actor-networks. When these actors clashed, the telecentre was an unwitting victim of the resulting conflict. The implementation of the telecentre barely paid lip service to the social components of the development process, such as gender, traditional authority and the implications of witchcraft accusations within a community that historically has been traumatized and destabilized by this phenomenon. The USA deterministically drove the RWA telecentre implementation, with little authentic consultation with the wider community.

The USA operated in a business process mode to implement technology into a development context. Business process mode tends to be linear, formal, with logical criterion to achieve the optimal outcome. Whereas development is a complex, constrained, informal process with objectives that encompass social political and economic factors. This situation provides a vivid example of western rationalization and linear determinism meeting the chaos of development, where one actor's (generally the more powerful) planning objectives are pushed through at the expense of the others.

The USA belonged to another actor-network that was driving the process and as such was merely an implementer of government strategy. The strategy was formulated outside of the recipient actor-network and aligned, primarily, with government strategy (the need to be seen to be alleviating poverty speedily and effectively), and not with consensual negotiated community based development objectives. A consequence of this was that the telecentre suffered from a trajectory failure. *'...Where the trajectory was visible after the fact, but subject to a considerable degree of*

happenstance. Our concern with projectory means we move beyond such passive chronicling to exert influence and steer the direction in which a project moves.' (McMaster, Vidgen, Wastell 1998: 353). The Due Process model can increase the probability of a successful projectory outcome, as it can integrate and align technology implementation with organisational strategy to exert influence and steer the direction in which the implementation trajects. In effect, the lack of attention to due process reduced the RWA role to that of telecentre custodian and lacking a purposefully directed trajectory, it became inoperable and unsupported.

Although the government invested substantial political capital into this remote rural telecentre program it did not manage to solve any development problems, conversely it created new problems and rather than being an answer it seemed to be a solution in search of a problem. This analysis provides further evidence that ICTs are technologies and they cannot solve political and social problems that are often the true roots of poverty.

This analysis highlights the dangers related to the separation of strategy and implementation. Roode (forthcoming) in his analysis of the South African ICT Sector Development Framework observes a notable flaw in the strategy development processes as the separation of strategy formulation and implementation. Further he notes that *'While the separation of strategy formulation and implementation does not have to lead to failure, it all too often does – even to default failure when implementation never starts, as if the implementers were almost scared by the sheer complexity of the blueprints provided by the strategists'*.

The RWA telecentre analysis exposes the vulnerability of failing to cohesively integrate technology implementation both with the social context and with the dynamics of the in- situ actor-network. McMaster, Vidgen, Wastell (1998:354) found that *'...In IS development, the tradition has been to separate social and technical issues and to apply different treatments. This means that the due process is not enacted and the likelihood of the network becoming aligned is reduced....'* Whilst not a prerequisite for success, the Due Process model offers a framework that, when followed, may increase the likelihood of the local institutionalization of ICTs. Attempts made by an experimental government body (the USA) to institutionalize the perplexing notion of ICTs before submitting them to the Due Process of perplexity, consultation and hierarchy proved a failure. The concomitant failed human expectations, loss of self-esteem and diminished social cohesiveness proved detrimental to the socio-political development process and contributed to the partial destruction of a hitherto successful women's development organization.

FURTHER RESEARCH

The RWA telecentre case reaffirms that the diffusion of ICTs and the increased emphasis on information activities, sometimes advocated in current development discourse, do not deterministically lead to socio-economic growth and organizational change. Intentionally or not, the USA telecentre programme was deterministic and failed to take cognizance of the prevalent pre-existing socio-political context. Perhaps other routes to ICT implementation outside of the community owned telecentre paradigm need to be explored.

Avgerou (1998) notes that at the level of the business firm, it is well accepted that the most significant benefits accruing from Information Technology (IT) are often consequences of the technology supporting organizational change. Avgerou's research further suggests that IT systems do not deliver sizeable benefits, unless part of an effort to introduce wider changes in the organization. At the community development level Gurstein (1999, 2000) agrees with Avegerou noting that whilst IT is useful in overcoming distance sensitivity, the presence of electronic resources alone will not meet a community's needs unless projects promote the use of local information systems.

The inference drawn from this preceding argument, and in considering the RWA telecentre experience, is that successful ICT introduction is multidimensional. The socio-political context, changes in organisational structures, in work processes and in products, services and markets can all be determinants of ICT acceptance, none of which were meaningfully explored during the telecentre implementation. Whilst there is a fair level of consensus on the need to embed telecentres and ICTs into the economic well being of rural communities, there is little theory-based "how to" information to guide this.

Forthcoming research by the author aims to provide information to bridge this gap by taking a bottom up and theory-based approach to building a conceptual model to embed ICTs within a specific business process and organisation type. Using ethnographic style action research, the project attempts to integrate a business process knowledge gap (marketing) with an information knowledge gap (market information) in a rural gender development context (The RWA), using E-commerce concepts. Previous research (Rhodes 2003) identified marketing as a deficient and required business process within the RWA. A conceptual framework (Rhodes 2002) was used to guide the data collection during the Action Research project. Secondly, the framework was used to expose the RWA operational and strategic decision-makers (the management team) to the concepts of marketing and E-commerce. Thirdly, it acted, as a sense-making device to describe and capture the managers' mental maps of the situational perceived interplay, alignment and relevance of marketing and E-commerce concepts for a rural African gender development organisation. The data was overlaid onto the conceptual framework to develop a bottom up, conceptual, community based business model.

REFERENCES

- Avgerou, C. (1998). How Can IT Enable Economic Growth In Developing Countries? **Information Technology for Development**, 8 (1):15-29
- Baark, E., Heeks R. (1998). **Development Informatics Evaluation of Donor-Funded Information Technology Transfer Projects in China: A Life-Cycle Approach**. Development Informatics Working Paper Series. Working Paper No. 1. Retrieved Jan 8 2002 from <http://www.man.ac.uk/idpm>
- Benjamin, P. (2000). **African Experiences with Telecentres on the Internet**. Retrieved June 10, 2003 from www.isoc.org/oti
- Benjamin (2001). **Telecentres and Universal Capability. A Study of the Telecentre Programme of the Universal Service Agency in South Africa, 1996 – 2000**. PhD Candidate Aalborg University, Sweden
- Callon, M. (1999). **The Market Test in Actor Network Theory and After**. In J. Law and J. Hassard (Eds), **Actor Network Theory and After** (pp.132-161) Blackwell, Oxford
- Callon, M. (1991). **Techno-Economic Networks and Irreversibility** in: J. Law (Ed) *A Sociology of Monsters? Essays on Power, Technology and Domination*: 132-161. Sociological Review Monograph 38. Routledge : London.
- Callon, M., Law, J. (1986). **Mapping the Dynamics of Science and Technology**. Macmillian press London.
- Chapman, R., Slaymaker, T. (2002). **ICTs and Rural Development: Review of the Literature, Current Interventions and Opportunities for Action**. Working Paper 192
Results of ODI research presented in preliminary form for discussion and critical comment
Overseas Development Institute.
- Commission of Gender Equality (CGE). 1999. **The National Conference on Witchcraft Violence. Braamfontain, Conference Report** cited in Dirk Kohnert J. of *Modern African Studies*, 41(2): 1-29
- Dalsgaard, S. (2001). **Digital Discourses: An Essay on ICT in Development**. Retrieved March 4 2003 from <http://www.comminit.com/st2003/sld-7425.html>
- Delius, P. (1996). **A Lion Amongst The Cattle – Reconstruction and Resistance in the Northern Transvaal**. Ravan Press, Johannesburg.
- Gorman, M., Heslop, A. (2002). **Poverty, Policy, Reciprocity and Older People in the South. Journal of International Development**, 14:1143–1151
- Gurstein, M. (1999). **Flexible Networking, Information and Communications Technology And Local Economic Development**. *First Monday*. 4 (2). Retrieved May 29th 2001 from www.firstmonday.dk/issues/issue4_2/gurstein.
- Gurstein, M. (2000). **Community Informatics: Enabling Community Uses of Information and Communications Technology**, Boston, Idea Group Publishing

- Heeks, R. (1999a). **Information and Communication Technologies, Poverty and Development**, Working paper No.5, Institute for Development Policy and Management. Manchester University. UK
- Heeks, R. (1999b). **Information ICTs and Small Enterprises**. Working paper No.7, Institute for Development Policy and Management. Manchester University. UK
- Kohnert, D. (2003). Witchcraft And Transnational Social Spaces: Witchcraft Violence, Reconciliation And Development In South Africa's Transition Process. **Journal of Modern African Studies**, 41 (2): 1-29
- Laudeman, G. (n.d). **Digital Development A Framework for Applying Information Technology to Community Socioeconomic Development**. Retrieved February 26th 2003 at <http://www.comminit.com/st2003/sld-7425.html>
- Latour, B. (1987). *Science in Action*. Harvard University Press.
- Law, J., Hassard, J. (1999). **Actor Network Theory and After**. Blackwell, Oxford.
- Macome, E. (2002). **The Dynamics of the Adoption and Use of ICT-Based Initiatives for Development: Results of A Field Study in Mozambique**. Ph.D. dissertation. Faculty of Engineering, Built Environment and Information Technology, University of Pretoria, South Africa.
- Madon, S. (2000). The Internet and Socio-Economic Development: Exploring The Interaction, **Information Technology & People**, 13 (2): 85-101.
- McMaster, T., Vidgen, R.T. and Wastell, D.G. (1998). Networks of Association and Due Process in IS Development, **IFIP WG 8.2 and 8.6 Joint Working Conference on IS: Current and future changes**, Helsinki, Finland, December 10-13/1998.
- Morales-Gomez, D., Melesse, M. (1998). **Utilising Information and Communication Technologies for Development: The Social Dimensions**. Information Technology for Development 8, (1):3-11
- National Telephone Co-operative Association (NTCA) 2000, **Initial Lessons Learned About Private Sector Participation In Telecentre Development, Guide For Policy Makers In Developing Appropriate Regulatory Frameworks**.
- Ralushai, N.V. et al. (1996). Report of the Commission of Inquiry into Witchcraft Violence and Ritual Murders in The Northern Province of The Republic of South Africa. Unpublished cited in Dirk Kohnert J. of Modern African Studies, 41(2): 1-29
- Rhodes, J. (2003) [Can E-Commerce Enable Marketing in an African Rural Women's Community Based Development Organization?](#) **Informing Science, Special Series on Community Informatics**, 6 (1): 157-172.
- Rhodes, J. (2002) Can E-Commerce Build Community Assets To Empower The Trading Activities of Rural Women? **Perspectives on Global Development and Technology 1 (3-4): 269-293**.
- Rhodes, J. (2000) An Internet Based Model for Building a Local Commodity/Trade Exchange for a Rural Women's Organisation. **Proceedings of the Second International Get Smart Conference - Using Community Informatics for Regional Transformation Rockhampton**, Central Queensland, Australia. December 2000: 68-88.
- Roode, D. (forthcoming) A Framework for Achieving Sustainable Development Through ICT Interventions.
- Skuse, A. (2001). **Information communication technologies, Poverty and Empowerment**. Dissemination note No.3 . Department for International Development. Retrieved March 15th 2003 from www.dfid.gov.uk.
- Walsham, G. (2001). **Making a World of Difference: IT in a Global Context**, John Willey and Sons, West Sussex, England.
- UNDP Human Development Report (2001). Chapter 2 **Today's Technological Transformations- Creating the Network Age**. Oxford University press UK.
- The World Bank Development Report on Poverty (2000). Retrieved January 20th 2001, from <http://www.worldbank.org/poverty/wdrpoverty/report/>.
- The World Bank Human Development Report on Poverty (2001). Retrieved August 15th 2001, from <http://www.worldbank.org/poverty>.