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A Framework to Assess Participation and Empowerment Impacts of ICT4D Projects

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Abstract

Community participation in ICT-for-development (ICT4D) is sometimes portrayed as a 'magic bullet', which will inevitably lead to better project outcomes and the empowerment of marginalised participants from the local community. This paper takes a critical approach to participation, drawing on dual roots of participation in Development Studies and Information Systems, to consider whether apparently successful ICT4D projects, that follow best-practice for participation, are also succeeding in longer-term participant and community empowerment. The paper identifies issues and success factors relevant to participatory ICT4D and its potentially empowering role for local communities; explores the relevance of these factors to the reality of ICT4D projects in developing countries; and investigates the potential for producing an analytical framework that incorporates a project design approach that could help practitioners in the field incorporate empowerment objectives.

A. Introduction

This paper discusses the role of participation, and in particular, participatory development and design techniques within ICT4D. The paper identifies success factors relevant to participatory ICT4D and its potentially empowering role for local communities; explores the relevance of these factors to the reality of ICT4D projects in developing countries; and produces a revised project design approach that identifies criteria upon which empowerment can be evaluated. Lessons are drawn from a variety of theoretical perspectives of participation which are tested against some real-world ICT4D projects, from which further lessons are drawn. These lessons are brought together into a proposed guiding framework which – it is hoped – may assist practitioners in realising the many benefits of participatory approaches to ICT4D while helping to avoid the pitfalls. The guidance seeks to improve the success of ICT4D projects in general, and in particular, with regards to their ability to empower those who participate in such projects.

B. Literature Review

Participation features in many disciplines – those directly related to ICT4D such as Information Systems, Human-Computer Interaction, Communication Studies and Development Studies (Avgerou 2010) – as well as wider areas such as Organisational Development, Interactive Arts, Urban Planning and Product Design. However, the two most prominent roots of ICT4D, focused on here, are Development Studies and Information Systems Design (ISD).

Within Development Studies, the idea of giving local people 'ownership and control' over their own development has its roots in Freire's ideas of conscientisation and the alternative development movements of the 1960s (Francis 2001), as well as in community development activity of colonial administrations (Hickey and Mohan 2004). It has had a surge in popularity since the 1980s, primarily due to the emergence of Robert Chambers' work on Participatory Rural Appraisal (PRA), and to its prominence in the body of work relating to gender empowerment. PRA has been criticised more recently on many fronts, mostly related to its lack of engagement with fundamental issues of power and control (Kothari 2001; Cooke and Kothari 2001).

Within Information Systems Design, participation has a similarly long history, becoming prominent in work around 'human relations' in the 1930s, and becoming a mainstream part of Human Resource Management in the last 20 years. In the ICT sector specifically, Participatory Design emerged primarily out of Scandinavia and the UK in the 1960s, where it was intended to engage with uneven power structures in the workplace and empower workers and unions within the context of the introduction of new technologies (Bodker et al. 2004; Kensing and Blomberg 1998; Dearden and Rizvi 2008). This acknowledgement of power relations – and tools/techniques designed with ICT specifically in mind – make Participatory Design a rich source of learning to complement the research from Development Studies.

ICT4D sits clearly at the junction of Development and ICT so participatory ICT4D can clearly draw valuable lessons from the experiences and learning related to participatory approaches in both these fields, and both are explored in the following section grouped in terms of the timeline of a typical development project covering *Preparation*, *Delivery* and *Sustainability.*

B1. Critical review of participatory development theories

There are lessons to be drawn both from the literature supporting participatory approaches - most notably Participatory Rural Appraisal (PRA), with its core ideas of reversing power relationships

(Chambers 2008; Chambers 1997; Mosse 2001; Francis 2001). Equally valuable lessons can be drawn from the literature dissecting and criticising PRA and other participatory approaches, which has arisen since they became another 'development orthodoxy' (Hickey & Mohan, 2004; Cooke & Kothari, 2001, Cornwall, 2003; Henkel & Stirrat, 2001), focusing on motivations, power relations and co-optation (Cornwall 2003; Hildyard et al. 2001; Cooke and Kothari 2001; Henkel and Stirrat 2001). More bottom-up approaches (such as Participatory Urban Appraisal) also bring in a more political aspect around strengthening the bargaining position of the poor through capacity-building activity that is a valuable guiding idea (Bolnick and Patel 1994; Patel 2004; Mitlin and Thompson 1994). These lessons from the Development Studies literature can be summarised as follows:

Preparation

Participation in '*initial goal setting*' is critical. Rather than confining participation to one pre-defined element of a project, beneficiaries should be involved from day one, included in setting the initial goals and defining the needs of their own communities rather than having these needs and goals defined by outsiders (Williams, 2004; Vincent, 2004; Kelly, 2004; Cornwall, 2003; Heeks, 2010, 1999). There is also need for representation of the needs of all groups, especially the marginalised. Claims that participation can tackle issues of marginalisation begin to wobble when questions are asked about who participates (Cornwall 2003). This is not simply a case of ensuring the marginalised are included however. Because someone is a representative of a specific marginalised group, this does not necessarily mean they represent all the issues and concerns of this group. It may also be impractical for everyone to participate (especially in large urban settings) and the choice of who represents each group can be profoundly political (Srinivasan 2006; Cornwall 2003; Patel 2004; Arunchalam 2002). Additionally, inviting someone to participate is insufficient, they also need motivation and opportunity to participate; skills and confidence to have a voice and a structure that ensures this voice is heard and translates into influence – otherwise the process may be seen as a sham. In summary, the complex social pressures on motivation (Cleaver 2001; Cooke and Kothari 2001); the cost of time away from livelihood-generating activity (Hickey and Mohan 2004; Cornwall 2003); and the lack of key skills such as assertiveness (Cornwall 2003) make this a complex area to resolve.

Delivery

Particularly important in the delivery phase is to understand the influence of local power structures. Every community has pre-existing power structures. These are sometimes misunderstood and the community treated as a single entity with one set of goals – the 'myth of community' (Heeks, 2010, 1999; Day et al. 2009; Cornwall 2003; Bailur 2007; Bailur 2008; Mutenda et al. 2011) rather than a mix of conflicting goals, interests, social structures and power relationships (Mohan 2001; Cleaver 2001; Francis 2001; Cooke and Kothari 2001). In this context, consensus may not be possible or even desirable as more powerful groups may dominate, leaving weaker groups unwilling to challenge the status-quo, and participation can thus re-assert the goals of the dominant minority (Cornwall, 2003; Kothari,2001).

There is also a need to understand the influence of powers above and below the community (for example at the level of the household, local/national government or market). A focus on the community ignores household-level power structures and may also overlook the role of the state in creating an environment that supports or inhibits local participation (Mitlin and Thompson 1994; Patel 2004; Kelly 2004; Hickey and Mohan 2004). Without the ability to actively and usefully engage in the public domain, participation may not be achievable (Mohan and Hickey 2004;

Cornwall 2004; Williams 2004) or may be confined to tinkering around the edges and not engaging with the real issues. In this respect, group dynamics need to be managed to avoid unfair outcomes. Groups have the potential for the 'tyranny of the group' (Cooke and Kothari 2001) – where the act of seeking consensus can obscure divergent interests, narrow potential options, and reflect the views of the loudest voices (Cooke and Kothari 2001), risking the group being coerced into decisions by its more dominant members (Mosse 2001; Hailey 2001; Cooke 2001).

Finally, in dealing with the political realities associated with delivery it is important to appreciate the appropriate role and value of external experts, and the potential for unintended influence, and the need to build trust between these external experts and the local community. The external agent in an intervention may be considered as either pre-eminent or excluded and side-lined, both options failing to recognise the value of the joining of Western and indigenous knowledge. For this to be effective, personal criteria such as trust, friendship and respect are vital (Hailey 2001), along with the need for experts' awareness of the power and influence of their own role, and a wider understanding of human behaviour, political situations and local dynamics (Cooke 2001; Hailey 2001; Mohan 2001; Cornwall 2003).

Sustainability
The literature suggests that sustainability is more likely when interventions work with and evolve within existing structures and processes where possible. Participatory approaches often develop new decision-making structures, ignoring well-established existing institutions (Cleaver 2001; Kelly 2004), potentially usurping legitimate decision-making processes (Hailey 2001), which could have been utilised. This involves developing capacity of local institutions, and skills of local people. For participation to be an on-going transformative process (Hickey and Mohan 2004; Williams 2004) individuals and communities must be empowered and develop capacity to take on the ownership and control of both the immediate goals, the technology, and the participatory process itself (Vincent 2004).

B2. Participatory information systems design
Although participation in the context of information systems design (ISD) often refers to simply involving users in design, to better understand their tasks and requirements (Steen et al. 2007), it also has a more emancipatory meaning in Participatory Design (PD), originating in Scandinavia in the 70s. This approach pays significant attention to unequal power structures and sets out to create a more democratic workplace (Dearden and Rizvi 2008; Janson and Cecez-Kecmanovic 2003; Kensing and Blomberg 1998; Muller et al. 1993; Puri 2004; Steen et al. 2007). While some of the discussions mirror those in development studies above, there are a number of additional success factors and lessons specific to this discipline and with particular relevance to ICT4D. These are outlined below:

Preparation
Participants need sufficient understanding of technology to allow them to participate effectively. In most ICT/IS projects, there is an assumption that users (or beneficiaries) are prepared, skilled and motivated to participate; are aware of their own needs in relation to technology and how it might help them. In reality, this is not always the case even in the West and is even less common in developing countries or rural communities (Beynon-Davies et al. 1999; Steen et al. 2007; Maunder et al. 2007), where the participants may never have used the technologies they are being asked to have an opinion about; arguably making their 'participation' less useful and perhaps even counter-productive.

Delivery

Successful delivery requires understanding of the suitability of different methods for different levels of skill and understanding of technology. Participatory design tends to use mainstream ICT methods (workshops, scenarios, mock-ups etc.) but emphasising a gradual development of understanding of users' needs, tasks and goals (Dearden and Rizvi 2008; Maunder et al. 2007). These methods are very different from those used in participatory development, and are self-evidently highly suitable for the design of technology. However, they do rely on a relatively good understanding of technology, as outlined in the previous section. Participatory design techniques also highlight the importance of identifying different types of stakeholder, and working with them - both separately and together. This has the potential to avoid some of the problems with group dynamics discussed in relation to participatory development methods – especially avoiding the over-reliance on 'public sessions' (which are particularly susceptible to the power issues identified as a group dynamics issue) that are sometimes criticised in PRA projects (Williams 2004; Cornwall 2004; Cooke and Kothari 2001).

Sustainability

ISD throws an additional factor into the idea of 'sustainability failure' – the tension between producing a quality product and following a participatory process (Kensing and Blomberg 1998; Ho et al. 2009). This is of course particularly relevant in ICT4D where the results from successful delivery of a quality technical product may be at odds with the results from the empowerment of a well-managed participatory process. There is an argument that people adapt to technology, not the other way round (e.g. the iPhone) (Norman 2005), which suggests that an early understanding of which one is most important – innovation for a new product, or community adoption of existing technologies – is key, and may affect the viability of a participatory approach.

At the start of a project, participants may be unable to generate requirements, be prone to misunderstand prototypes, and may have an inability to imagine the impact of a new technology on their daily working lives (Maunder et al. 2007; Kimaro and Titlestad 2008). However, in many cases, the external agent can see this connection and may have successfully implemented similar technology solutions in other communities. This introduces the concept of 'latent need' which is fundamental to much ICT4D work – the idea that technology can have a positive effect on a community but the people within that community do not yet have the technological understanding to understand this. This may require a much longer-term approach than is common in ICT4D, perhaps entailing 'pre-projects' with the sole aim of increasing understanding of technology before the real participatory ICT4D work begins. Managing latent need requires a phased approach which builds technological understanding of participants over time.

However, no matter how participatory an approach is taken, as with other technical disciplines such as architecture or engineering, local desires cannot always take precedence over technical considerations of what works or what is possible, practical or safe. This tension is especially important at the beginning of ICT4D work where the technological understanding of the local community is most likely to be at its weakest.

B3. Participatory ISD in a development context

There is an emerging school of writing that combines elements of both disciplines discussed above, seeking to apply participatory design techniques from the West, to development projects in developing countries. This goes beyond an 'ad-hoc combination of methods' (Dearden and Rizvi 2008) and seeks to construct socially-aware software engineering for the developing world based on principles from participatory design and action research (Ho et al. 2009). Some key concepts and lessons emerge from this relatively new field:

First, prevalent in the sub-discipline of Community Informatics, sustainability is seen to depend on community members controlling the means to design, develop and deploy IT solutions, becoming confident IT planners and designers (though not necessarily skilled programmers/engineers) (Ramirez 2008; Carroll and Rosson 2007). This tension between devolving ownership and requiring complex technical skills is equally important in ICT4D.

Second, participatory ICT/IS design techniques tend to be formal and written (e.g. requirements workshops), in contrast with visual methods of PRA (e.g. participatory mapping) (Dearden and Rizvi 2008). The formal techniques of ICT/IS are well suited to the goal of designing an information system but assume a high level of familiarity with technology and with certain styles of meeting/workshop; whereas PRA methods are better suited to rural, relatively technology-illiterate communities, but do not lend themselves well to producing detailed technical requirements. Combining the two disciplines intelligently at appropriate stages may help to enable fairer participation.

Third, while the previous section identified the possibility that participants may not need to develop advanced technical skills but IT design/management skills, within ICT4D this still poses a challenge of identifying, nurturing and training specific people to do this who may have little or no background in technology. This challenge is not always recognised and becomes especially problematic when combined with the impetus from Development Studies to empower the most marginalised, as these are unlikely to be the existing 'technology champions' with the highest skills levels to start from.

B4. Summary of lessons from the literature

The table below brings together the discussions above into a project lifecycle, where it can be seen how these different lessons and success factors relate in the context of different stages of a typical ICT4D project:

Table 1. Summary of success factors suggested from the literature

|	
Preparing for participatory ICT4D	• ***Motivation (to empower)*** Genuine motivation of external agents to include local community in decision-making with a view to empowerment/emancipation • ***Bottom-up community-centric approach*** Participation of beneficiaries/community at every stage, from initial goal-setting onwards Reversing power – improving bargaining position of the poor Draw on and build capabilities of community and residents • ***Political and social awareness of external agents*** Understand relevance of complex local power structures, influence of powers above and below the community (household, local/national government, market), tension between quality of product and process, and between innovation and sustainability, dangers of co-optation • ***Who participates?*** Representation of the needs of all groups, especially the marginalised Appreciate tension between identifying technology champions and including the most marginalised • ***Ability to participate*** Participants need motivation, skill and opportunity to participate
Delivering participatory ICT4D	• ***Iterative development lifecycle*** Increasing involvement at each stage, starting small and building • ***Manage power imbalances and group dynamics*** Understand relevance of complex local power structures Understand the influence of powers above and below the community (household, local/national government, market) Manage group dynamics to avoid unfair outcomes • ***Facilitation and the role of the external agent*** Appreciate the appropriate role and value of external experts, and the potential for unintended influence Build trust between external experts and local community Work with different stakeholders both together and separately • ***Choice of methods and techniques*** Understand suitability of different methods for different levels of skill, context etc. Draw on different participatory design/development methods for different phases and contexts • ***Pragmatism*** Recognise situations in which technical limitations may take precedence over local needs
Sustaining participatory ICT4D	• ***Capacity build local institutions*** Work with and evolve existing structures and processes where possible Develop capacity of local institutions • ***Up-skill local individuals*** Manage *latent need* – phased approach required which builds technological understanding of participants over time to enable them to participate effectively Develop skills of local people Capacity build locals to become IT *planners/designers* • ***Increasing level of participant involvement throughout programme*** Towards eventual local control as soon as practical • ***Long-term view*** Aiming for long-term empowerment and success not just immediate impact

C. Contrasting Lessons from the Literature with ICT4D in Practice

C1. Preliminary analytical framework

While a formal analytical theory or framework of participatory ICT4D does not exist, the literature review and summary of success factors above show that there is a considerable amount of theory and best practice in both ICT4D and related disciplines from which a framework could be drafted.

The diagram below builds from standard iterative / process approaches to ICT/IS (Bodker et al. 2004; Laudon and Laudon 2009; Clegg 2000; Beynon-Davies et al. 1999; Bell and Wood-Harper 1998), and absorbs the learning and success factors identified above into this structure to represent a project-lifecycle approach to a participatory approach to ICT4D.

Fig 1. Preliminary analytical framework
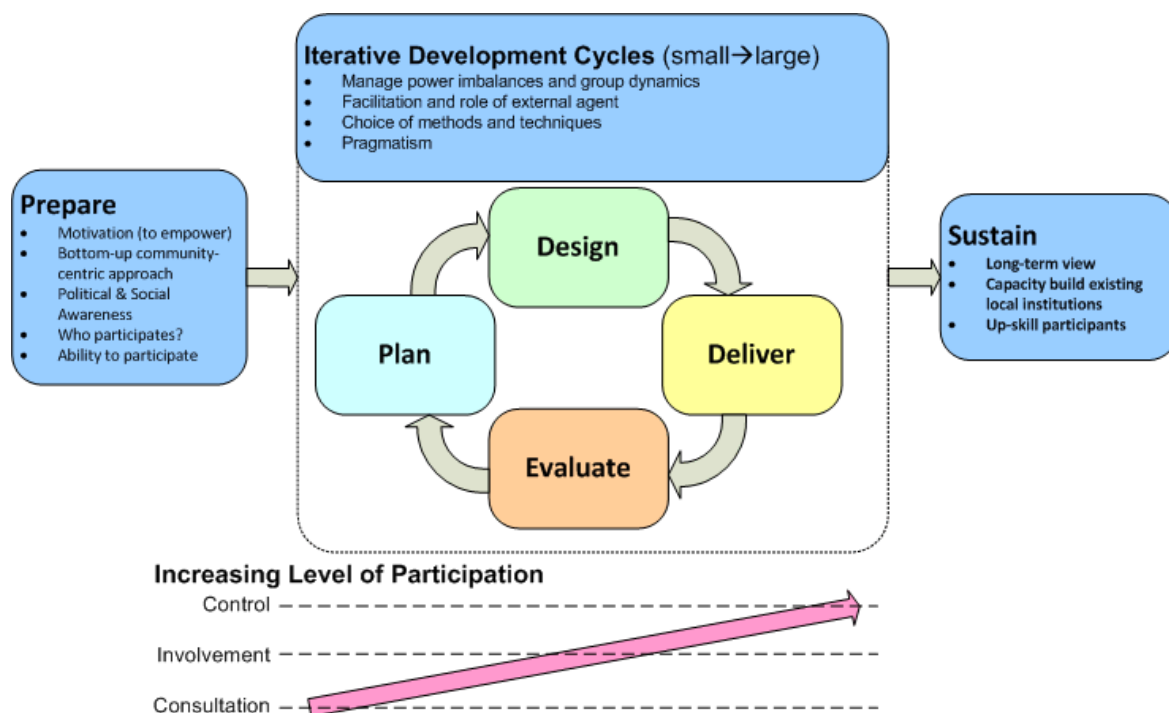
The framework may prove useful in two ways: first, by providing a guiding approach to influence the design of a new project ensuring it learns from the lessons and success factors in the wider literature set out previously; second, as a guideline to analyse existing participatory ICT4D projects to see whether they exhibit the qualities and criteria most likely to make them a success; the approach to which is set out in the following section.

C2. Methodology

This exploratory study takes a broadly critical methodological approach to examining the role of participation in ICT4D drawing upon Information Systems (IS) (Avgerou 2010; Walsham 2005; Myers & Klein 2011, 1999). This suggests that ICT4D and IS research should engage more directly with social issues and 'controversies in development' (Avgerou 2010), drawing on socio-economic theories and working more closely with related disciplines, including Development Studies (Avgerou 2010; Walsham 2005). Klein and Myers outline some key principles for each element of critical research intended as general guidelines, not 'bureaucratic codes of conduct' (Myers & Klein

1999). This research does not rigidly follow these, but is influenced by them in contrasting theoretical research and empirical evidence, identifying a diverse range of projects and interviewees, employing social theories of participation, challenging prevailing wisdoms for and against participatory approaches, and in its attempt to create new knowledge (in the form of a proposed approach to participatory ICT4D) that may have the potential to help with individual emancipation and societal improvements.

Sources of data and evidence
The analysis is informed by primary and secondary data. The primary data is based around examples of participation in projects in the field – in the form of interviews with key informants who were directly involved with these projects, and secondary data in the form of case-studies or other research undertaken on these projects (from peer-reviewed journals and other sources such as NGO publications and websites). Over 30 different types of project/organisation were originally assessed, then narrowed down to five core projects based on the desire for a range of project types and attitudes to participation as well as the quality of the insights offered (see Table 2). The rationale for choosing these particular projects was that they were all generally perceived as successful by conventional measures, and were reported as such, so they were a good choice to see if they are *also* successful by the criteria identified in the literature (see Table 1).

The five core projects/organisations (Table 2) are Fair Tracing (in Chile and India), Sarvodaya-Fusion (in Sri Lanka), Digital Green (in India and now globally), MSSRF (in India) and Safe Mothers Safe Babies (in Uganda). The full list of projects researched and considered is in *Appendix A.* The use of case-studies is sometimes criticised, but is appropriate for research such as this which is 'at early formative stages . . . where the experiences of the actors are important and the context is critical . . . well suited to capturing the knowledge of practitioners' (Benbasat, Goldstein & Mead, 1987).

Table 2. Summary of case studies and sources of evidence

Project	Country	Outline	Research	Interview details
Fair Tracing	Chile & India	Participatory research project to investigate feasibility of an ICT-enabled tool to demonstrate fair-trade provenance of coffee and wine, working with the growers and supply chains in each country.	Peer-reviewed journal article about the project (Ann Light, June 26th 2012; Light & Anderson, 2009).	Ann Light Research Director (University of Northumbria) *Interviewed 26 Jun 2012*
Sarvodaya-Fusion	Sri Lanka	Sri-Lankan NGO - worked closely with rural agricultural communities since 1996. Range of projects including tele-centres, ICT education curriculum, mobile farming apps, and Smart Village using smartphones for education and development.	Published article about their work and their project *FarmerNet* (Harsha Liyange, July 3rd 2012, 2009; Liyange & Edge, 2011)	Harsha Liyange Project Director (eNovation 4D) *Interviewed 3 Jul 2012*
MSSRF	India	Network of community-managed telecentres across various states in India, delivering ICT access. training and locally produced and managed content.	Three journal articles, plus articles on rival telecentre network *e-Choupal* (Neggehalli and Shankaran 2008b; Neggehalli and Shankaran 2008a; Arunchalam 2002; Sreekumar 2007)	*No interviewee available*
Digital Green	India, expanding to Africa and South Asia	Participatory video-sharing programme for agricultural extension, sharing new agricultural practices through mediated showings of locally produced videos, as well as via YouTube.	Peer-reviewed journal article (Shreya Agarwal, June 14th 2012; Gandhi, Veeraraghavan, Toyama & Ramprasad, 2009)	Shreya Agarwal Project Manager Digital Green *Interviewed 14 Jun 2012*
Safe Mothers Safe Babies	Uganda	NGO specialising in holistic community work with a focus on maternal and child health, across large regions of Uganda. Recently began including ICT in their work, via community education points and mobile-based storytelling.	N/A	Jacquie Cutts Founder Safe Mothers Safe Babies *Interviewed 26 Jun 2012*

Semi-structured interviews

Semi-structured interviews were performed in order to give some direction to the questioning but allow the interviewees maximum freedom to express their views and the direction of discussion. The choice of interviewee was based on 'convenience sampling' due to time constraints. This is appropriate as it is often used for this type of early or exploratory work (Biggam, 2011). In all cases except MSSRF and Safe Mothers Safe Babies, it was possible to conduct an interview and draw upon published research. The MSSRF case relies solely on published articles with differing viewpoints, while Safe Mothers Safe Babies research consists solely of an interview with the founder. Some practitioners from other organisations not being studied were also interviewed, and a face-to-face discussion with multi-disciplinary researchers was undertaken at the Designing Interactive Systems 2012 conference (DIS'12, 2012). A full list of all interviews can be found in *Appendix A*. In line with best practice (Myers & Newman, 2007), a minimal script was defined, with an opening introduction, key themes to be discussed (moving from the general to the specific) and outlining the next steps. Beyond this, an empathetic approach was taken to allow for 'development of the plot' (Myers & Newman, 2007) according to the interviewees' interests, and each interview evolved along different lines depending on the interests of the interviewee. All interviews were held via Skype, recorded and key findings later transcribed. The interview script is in *Appendix B.*

C3. Case study analysis

The empirical evidence is analysed according to the schema in the preliminary framework. While this is a subjective exercise, building from a range of different theories and critiques, a number of themes arise from the literature and it is, nonetheless, a helpful way to structure analysis of the evidence. Table 3 below summarises this analysis, and Table 4 presents an initial matching exercise for each project to the factors identified in the preliminary framework.

Table 3. Summary of case study analysis

	Prepare	Develop	Sustain	Participant control
Fair Tracing	Nine-month preparatory phase	High degree of iteration and improvisation	N/A – research project only	High but purely for research
Sarvo-daya Fusion	Long-term pre-existing relationship with communities	Some experimentation with delivery models	High focus on market-led financial sustainability	Generally low, but recruit staff from local communities
MSSRF	Extensive consultation before establishing a new centre	Limited due to network / franchise model of centres	Strong emphasis on local community appropriation of centres	Full control of centre rests with community, but with little control over wider network
Digital Green	Three years preparatory experimentation and research	Continually evolving model, albeit slowly and centrally managed	Emphasis on scalability and international rollout	High control over video production, no control over technology or management
Safe-Mothers Safe-Babies	Spend upwards of six months working with local leaders in each new community, then develop long-term working partnerships	Not explicitly iterative, but work on three projects per community in parallel, each evolving naturally over time	Work extensively with both formal and informal institutions, very aware of NGO role and need to encourage self-sufficiency	Very high from day one, but ICT programs are new so difficult to know if these will need to operate differently

Table 4. Match of projects to preliminary framework

	Fair Tracing	Sarvodaya-Fusion	MSSRF	Digital Green	Safe Mothers Safe Babies
Prepare					
Motivation (to empower)	Amber	Amber	Amber	Amber	Green
Bottom-up community-centric approach	Amber	Amber	Amber	Amber	Green
Political & social awareness	Green	Red	Amber	Amber	Green
Who participates?	Red	Red	Amber	Amber	Green
Ability to participate	Amber	Amber	Red	Amber	Amber
Iterative development cycles					
Manage power imbalances and group dynamics	Amber	Red	Red	Red	Amber
Facilitation and role of external experts	Green	Red	Amber	Amber	Amber
Choice of methods and techniques	Amber	Amber	-	Red	Amber
Pragmatism	Green	Green	Amber	Green	Amber
Sustain					
Capacity build existing local institutions	Amber	Red	Amber	Amber	Green
Up-skill participants	Red	Amber	Green	Green	Green
Long-term view of success	n/a	Green	Green	Green	Green
Level of participant control					
Increasing control	n/a	Red	Amber	Amber	Green

(Note. Green = High match, Amber = moderate match, Red = low match)

It is interesting that, despite all the chosen projects being generally perceived as successful by what were largely conventional evaluation criteria, only Safe Mothers Safe Babies seems to exhibit a consistent match with the factors identified. The other projects demonstrate a few elements strongly, and the remaining factors weakly or not at all. Safe Mothers Safe Babies seems to be the only project whose participants are operating at the 'level of control', and therefore it is no surprise that is also the strongest match to the framework. The projects which profess to be more participatory (Fair Tracing and Digital Green) appear to be a closer match than the two which do not emphasise this aspect (MSSRF and Sarvodaya-Fusion) although none are a particularly strong match. In addition, factors emerge from analysing the case-studies which are either not present or not strongly emphasised in the initial framework based on the theoretical literature. These are summarised below:

- First, the importance of sufficient preparatory time is mentioned in the wider literature but emphasised far more strongly by the practitioners in the field, with Safe Mothers Safe Babies spending upwards of six months building relationships with local leaders before even initiating a project (Jacquie Cutts, June 27th 2012), and Fair Tracing spending nine months working in and with the community before even signing an MoU (Ann Light, June 26th 2012).
- Second, the real ICT4D projects suggest a more specific version of the 'local context and local involvement' than is suggested by the literature – locally produced, generated and managed content, content that takes account of local people's specific cultures, needs, wants and daily routines (Dagron 2001; Arunchalam 2002), whether video (in Digital Green), local websites (in MSSRF) or stories produced for mobile phones (in Safe Mothers Safe Babies) (Jacquie Cutts, June 27th 2012; Shreya Agarwal, June 14th 2012; Arunchalam 2002).
- Third, a critically useful topic emerged through discussions with the practitioners – the different meanings attached to the concept of sustainability, and the different views over how

to achieve this. Different meanings included replicating/scaling to a wider area, the financial ability to continue delivering, or empowerment of the community to continue development unaided (Shreya Agarwal, June 14th 2012; Ann Light, June 26th 2012; Light & Anderson, 2009; Harsha Liyange, July 3rd 2012, 2009; Neggehalli & Shankaran, 2008a; Jacquie Cutts, June 27th 2012).

Contrasting the sample of real projects with the findings from the literature gives rise to contrasting explanations. Thus, within the selected relatively successful projects, the literature suggests there are significant factors associated with participation and empowerment that we would expect to find, but which are in-fact absent. This may indicate that these projects have fallen short in some way and there is a need to revisit the way we evaluate projects to ensure these participatory and long-term empowerment elements are included. Alternatively, the mis-match may point towards deficiencies or misplaced assumptions in the literature. This conundrum can be explored further by considering a number of themes that emerge from the theoretical literature and practical projects together, and these are discussed in the next section.

C4. Discussion

A recurring theme throughout the literature and in the project interviews is the idea that local communities need to appropriate the external technology for their own use. Research on other projects (e.g., e-Krishi in India, a web-based e-commerce platform for social inclusion) discusses this concept more explicitly and names it 'technological empowerment'. That is, the difference between empowering people developmentally (i.e. in terms of learning, health, governance etc.) and empowering people technologically to manage and control the underlying technology and platforms used to deliver this developmental impact. This distinction is crucial and underpins many of the previous findings around skills, motivation, ownership and sustainability. This is because ICT is not simply another tool, but is a powerful 'agent of change' (Yeo et al. 2011), and a 'regulator of social practice . . . inviting human action to be conducted along specific paths' (Masiero 2011). Even something as simple as defining what data an information system will measure influences processes, and thereby can change ways of working, ways of seeing the world, and priorities for action. Seen in this context, it is important that local individuals and the community are empowered with respect to technology itself – something which only happens if they are capable of manipulating it (Masiero 2011).

In terms of capacity building and learning goals, this poses a challenge as, in addition to building 'developmental capacity' (e.g. management, finances, dealing with donors etc) the local institutions need to develop 'technological capacity' also – the ability to control and manage ICT (and in some circumstances the skills and ability to actually build, maintain and develop the technology itself) and an understanding of how to continue development in a genuinely participatory manner. The same is true of the skills individuals need to develop – not just management/development skills, but technical and facilitation skills as well. It does not seem practical to expect people with little or no technology grounding to develop these skills hence the suggestions earlier in this research that they develop the skills to 'plan and manage ICT, not build it' (Ramirez 2008; Carroll and Rosson 2007).

Technological empowerment: a global socio-political perspective

Technological empowerment as previously outlined is a laudable aim for ICT4D. However, realistically, technology and ICT are Western constructs, driven primarily from large Western multi-nationals and US/European governments. In this context, no matter how participatory an

approach is taken to an individual project, the factors shaping how a developing community is included in 'the digital world' are conditioned by external political forces. This makes ICT4D inherently part of a modernising project; bringing technology from richer countries to help improve the lives of people in poorer countries. This is not necessarily a problem – despite raging debates over modernising, very few people realistically advocate the 'abandonment of modernity in favour of a potentially romanticised view of pristine, bounded islands of alternatives' (Mohan and Hickey 2004) and recognise that – at its best – the modernising project is about improving people's material well-being.

However, it does affect what is a realistic goal for technological empowerment – it may be that a reduction in technological dependency is the best that can be realistically expected, rather than naïvely attempting to eliminate dependency on external/Western support entirely. Given the increasing prevalence of mobile-telephony, where the infrastructure and hardware are invariably controlled by private (usually Western) companies, this seems unlikely to change. An ICT equivalent of the idea of 'dependent development' is a helpful construct to consider development of a local community within a wider structure of dependency, seeking to lessen this dependency but not ignoring its inevitability (Cardoso and Faletto 1979; Hills 1994; Vernengo 2006). In an 'unprecedentedly connected world' (Gurumurthy and Singh 2009), it may be that taking this ethos, while using participatory approaches to seek ways to appropriate and control the technology locally as far as is possible, is the best that can be expected.

Financial vs. social sustainability
The tension between financial and social sustainability is particularly interesting to discuss further. There is a definite potential for conflict between a desire to self-generate income and a desire to embed technology in a community where it can be appropriated by local people. For example, the telecentre model of e-Choupal (and Gyandoot and many others) uses centrally controlled technology to keep costs down, while dictating a self-sufficient model of operation that requires paid-for services to be offered from a very early stage. This contrasts with the community-mediated model of MSSRF (Neggehalli and Shankaran 2008b; Arunchalam 2002; Sreekumar 2007; Neggehalli and Shankaran 2008a). This may lead to situations where the product/services can be skewed to reflect the needs of those who can pay for them – unlikely to be the most marginalised – as well as shifting the project focus away from the simple provision of a social good (Liyange and Edge 2011; Dagron 2001; Bailur 2007). This in turn can make the social embedding more difficult as the project (especially in the case of services such as a telecentre) becomes a local business with a profit motive, not a community-owned resource, a 'cyber café by another label' (Michael Gurstein, June 19th 2012).

While there is a common-sense argument that financial sustainability is a must-have, there is a strong counter-argument that becoming financially sustainable without providing any social value is as big, if not a greater danger (Michael Gurstein, June 19th 2012; Dagron, 2001).

Different options for sustainability
Following the thought process around different 'types' of sustainability, there are other concepts that are worth adding to those already mentioned. Projects may also simply evolve (i.e. continue but with on-going changes or enhancements), or may be expected to repeat the process (i.e. the participants now have the skills to repeat the participatory ICT4D process again, perhaps for a different local need/issue), along with the recognition of the importance of other factors such as the handing over of effective management processes (DIS2012 2012). There is also a difference

between scaling (expanding an existing project to cover a broader area or larger number of people), replicating (using a project as a model to be re-implemented in a similar fashion in a different place), and 'franchising' – as epitomised by both MSSRF and Digital Green (expansion to new communities with local control, but within a centrally controlled framework). These differences are important as they provide a basis for planning what needs to be in place before 'sustainability' is possible. For example, if a project is to evolve after the design team leave, this requires end-user appropriation of the technology and design processes – in order to develop 'environments, not solutions, allowing problem owners to create solutions themselves' (Light and Anderson 2009). On the other hand, if a project is required to replicate and/or scale then clearly the most crucial element of sustainability is 'facilitating the necessary learning processes to enable the process to continue and develop' (Byrne & Sahay, 2007).

In order that the requirements to achieve sustainable outcomes are in place at the end of a project, they must be planned in from the beginning. This dictates a level of understanding of the type of sustainability being aimed for from day one, accompanied by appropriate planning of how to achieve it – in terms of funding, technology, institutional capacity, individual learning and so on. This concept is critical to the success of a participatory approach as sustainability (of whichever form) and is fundamental to the long-term success of an ICT4D project, and is implied in the idea of technological empowerment above. Without a shared understanding of what sustainability means in a particular context, accompanied with goals for the skills and institutions needed to achieve it, and a plan for how to get there – it is unlikely that a project will achieve the success it otherwise could.

Matching level of 'receptiveness' to level of participation
Another factor which is hinted at in the literature and evidence but not made explicit is the tension between what is hoped for and what is practical. While there often appears to be a desire to operate at the highest level of participation possible, there is also a practical understanding that (considering issues discussed earlier such as latent need and the willingness and ability to participate and existing power relations) many factors may inhibit meaningful involvement in reality (Mutenda et al. 2011).   If the participants are not adequately equipped to participate fully – it may be counter-productive and reinforce rather than challenge entrenched power structures and marginalisation.

However, this does not mean that seeking to operate at the highest level of participation should not remain the goal – to do otherwise would be short-sighted and would be to revert to a paternalistic view of development that has been moved beyond. Rather, the solution, it seems, is to put into place plans to help people/institutions develop the skills, attitude and confidence in technology, development and participation in order that – in the future - they are able to participate effectively at the highest level of participation: control. This requires taking a much longer view than is common in ICT4D work – with the possible initiation of early, small projects (at a low level of participation) the primary purpose of which may be to develop skills, technological awareness or institutional capacity, paving the way for further projects at increasingly higher levels of participation over time.   Hopefully, after a number of such projects, the community/people have the skills, confidence, technological understanding and fair and representative institutions to support 'full control' and take ownership of subsequent phases themselves.

Of course, there remains an issue where some members of a community have the skills/knowledge required to participate effectively, and others do not. This is one of the many reasons why considering individual members is insufficient - the local institutions need capacity-building at the same time, while sufficient attention is paid to their make-up to ensure they are fair, representative and avoid marginalisation of elements of the community.

D. Framework Development, Conclusions and Recommendations

D1. Summary of pragmatic lessons from theory and practice

Table 5 below revisits the success factors obtained from the theoretical literature earlier, and integrates the emerging themes set out in the discussion. These are grouped together by a slightly modified project lifecycle that has been changed to reflect the importance of the early 'pre- and post-phases' of work.

Table 5. Revised summary of success factors for participatory ICT4D

Pre-requisites	• ***Motivation to empower (developmentally and technologically)*** Genuine motivation of external agents to include local community in decision-making with a view to empowerment/emancipation • ***Political and social awareness of external agents*** Understand relevance of local power structures (individual, household, community, local/national government and global markets), tension between quality of product/process & innovation/sustainability, dangers of co-optation; and difference between simple technical fixes and complex social problems
Preparing for participatory ICT4D	• ***Discovery phase*** 3-6 months min. to develop trust & relationships and understand local context • ***Bottom-up community-centric approach*** Participation of beneficiaries from initial goal-setting, improve bargaining position of the poor, recognise people's understanding of their own situation • ***Who participates?*** Representation of the needs of all groups, especially the marginalised; appreciate tension between identifying potential technology champions (those with existing technological ability) and including the most marginalised • ***Ability to participate*** Participants need motivation, skill and opportunity to participate; consider pre-work/pre-projects to build technological skills and awareness
Planning for and achieving sustainability	• ***Long-term view of empowerment - reducing technological dependency*** Technological empowerment may mean taking broader view than a single project; consider tension between type of project and type of sustainability/empowerment • ***Capacity build formal and informal local institutions*** Evolve existing structures / processes where possible; develop capacity of local institutions • ***Up-skill local individuals /participants*** Manage *latent need* – phased approach required which builds technological understanding of participants over time to enable them to participate effectively; develop skills of local people to become IT *planners/designers* • ***Long-term view*** Aiming for long-term empowerment and success not just immediate impact
Delivering participatory ICT4D	• ***Iterative development lifecycle*** Increasing involvement at each stage, starting small and building • ***Facilitation and management of power imbalances and group dynamics*** Understand how to work within power imbalances fairly yet practically; manage group dynamics to avoid unfair outcomes; work with different stakeholders together & separately – in small groups as well as community-wide sessions • ***Role of the external and technical experts*** Appreciate role and value of external and technical experts, but be aware of potential for unintended influence; build trust between external experts and local community - candour and honesty are vital • ***Choice of methods and techniques*** Understand suitability of different methods for different levels of skill, context etc.; draw on different participatory design/development methods (and wider disciplines) for different phases and contexts, be aware of what contexts suit what methods • ***Pragmatism*** Find the optimal level of participation for each phase/cycle of work; recognise situations in which technical limitations may take precedence over local needs; be aware of tension between pragmatism and overcoming power imbalances • ***Local context, Local content*** Locally produced content is vital in addition to access to existing global content
Level of participant control & receptiveness to participation	• ***Seek pragmatic optimal match*** Between participants' receptiveness and appropriate level of participation • ***Increase level of participant involvement throughout programme***

D2. Testing the complete set of success factors against the case-studies

Revisiting the case-studies it is interesting to see how they now fare when tested against this revised and extended set of success factors and criteria. Of course this remains a subjective analysis, but a useful indicator nonetheless.

Table 6. Projects matched to revised framework

	Fair Tracing	Sarvodaya-Fusion	MSSRF	Digital Green	Safe Mothers Safe Babies
Pre-requisites					
Motivation (to empower developmentally and technologically)	Amber	Red	Red	Red	Green
Political & social awareness	Green	Red	Amber	Amber	Green
Preparation					
Discovery phase	Green	Green	Amber	Green	Amber
Bottom-up community-centric approach	Amber	Amber	Amber	Amber	Green
Who participates?	Red	Red	Amber	Amber	Green
Ability to participate	Amber	Amber	Red	Amber	Amber
Planning for and achieving sustainability					
Sustainability planned for?	n/a	Green	Amber	Amber	Green
Long-term view – reducing technological dependency	n/a	Amber	Amber	Amber	Green
Capacity build existing formal *and informal* local institutions	Amber	Red	Red	Amber	Green
Up-skill participants	Red	Amber	Green	Green	Green
Long-term view	n/a	Green	Green	Green	Green
Iterative development cycles					
Iterative approach?	Amber	Amber	Red	Red	Green
Facilitation and managing power imbalances and group dynamics	Amber	Red	Amber	Amber	Amber
Role of external and technical experts	Green	Red	Amber	Amber	Amber
Choice of methods and techniques	Amber	Amber	-	Red	Amber
Pragmatism	Green	Green	Green	Green	Green
Local context, local content	Amber	Amber	Green	Green	Amber
Level of participant control & receptiveness to participation					
Optimal match sought	Red	Red	Red	Red	Amber
Increasing participant control	-	Red	Amber	Amber	Green

(Note. Green = High match, Amber = moderate match, Red = low match)

Most of the projects fare slightly worse, which fits with a common-sense judgement as none take a radically progressive approach to technological empowerment (which is what would evidently be required to score highly in every factor). However, the developmentally-driven Safe Mothers Safe Babies still scores significantly better than the other projects, as would be expected given its more community-led approach and its goal of facilitating the local community to take full control over its own development. It seems, therefore, that – despite an obvious need for additional, more robust research – this set of success factors has validity when analysing and evaluating the approach of ICT4D projects to participation and the potential impact on technological empowerment.

The following section goes on to explore bringing these factors together into a more structured guiding framework which could be used as an aid to planning, developing and delivering new ICT4D projects.

D3. A proposal for a guiding framework for participatory ICT4D

Below is a revised version of the preliminary analytic framework from Section C. This version includes a separate section for pre-requisite/pre-project activities (without which an empowering participatory model may simply not be possible), and includes a 'feedback loop' intended to represent the concept of 'Planning for Sustainability'. This is shown before delivery commences, at the evaluation of each cycle of development, and at the end before realisation of a sustainable outcome such as handing over of control to the community. In this way the framework accommodates the idea of the community agreeing on the sustainability goal from the outset, and then planning and building towards this throughout the project lifecycle. The different possible sustainability goals are also represented at the far right of the model.

Fig 2. Revised analytical framework
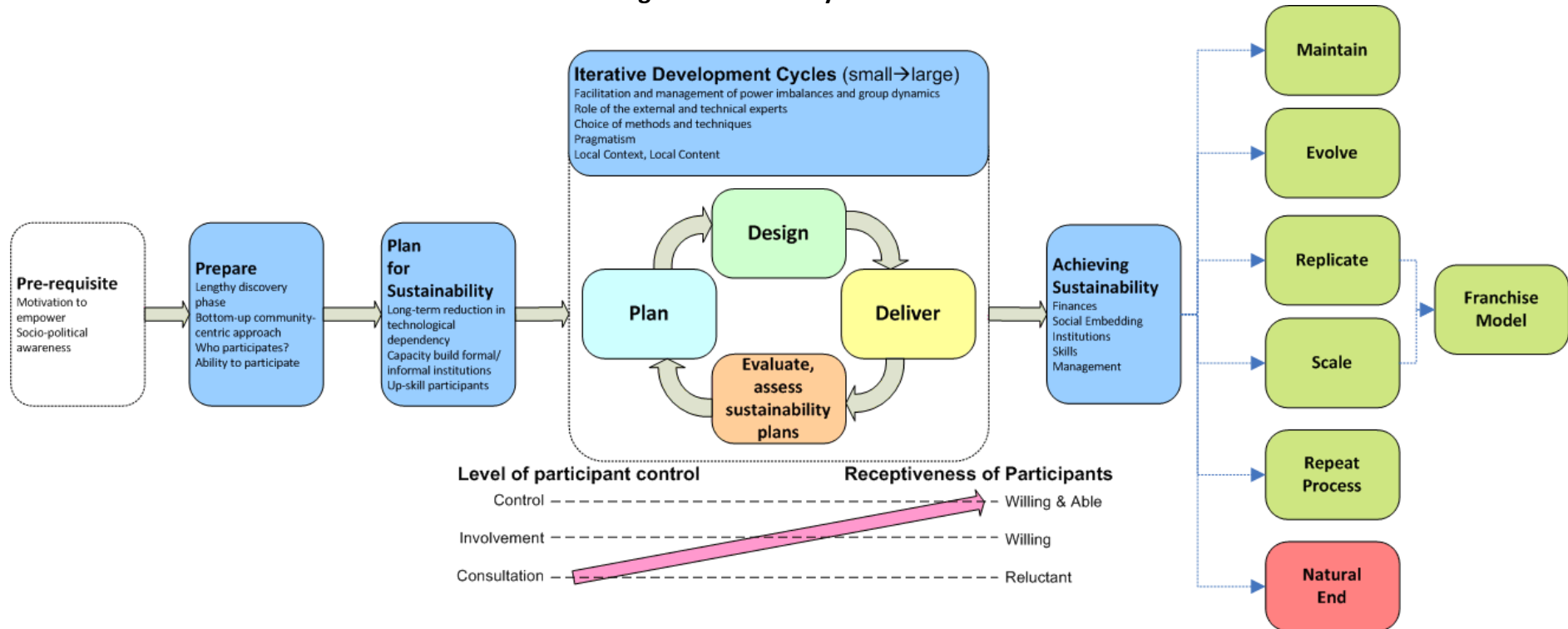
This guiding framework is not intended as a blueprint to be followed rigidly, but as a useful tool, and a set of principles and guidance. It is expected that this model would evolve with use and, ideally it would be supplemented by a toolkit of potentially-relevant methods that practitioners could draw on to develop specific and context-specific project plans.

So, while the proposed approach seems to offer a way to overcome or reduce many of the problems faced by ICT4D and participatory ICT4D in particular, it is largely untested, although Safe Mothers Safe Babies emerges as a reasonably close match and some of the key concepts were well received by cross-disciplinary practitioners of various participatory disciplines at the conference Designing Interactive Systems 2012 (DIS, 2012). However, there is a clear need for the model to be tested more comprehensively, and evolved through a wider application, and in the field against a wider range of projects or, better still, be applied to a long-term participatory ICT4D project as a planning tool and its effectiveness in this role analysed.

D4. Implications of using this framework

The framework provides a revised understanding of how ICT4D projects can be evaluated, and given the working paper format, the approach is very much work in progress. The suggestion, however, is that the way ICT4D projects are evaluated should be re-considered to take account of longer-term sustainability and empowerment factors that, even within apparently successful projects, have tended to be either side-lined or ignored. Integration of sustainability and empowerment criteria may present certain challenges which are set out below.

Practitioner skills

To deal with the types of complex socio-technical issues this approach dictates, ICT4D practitioners need to have wide-ranging skills covering technical areas, development management, participatory methods, facilitation and an awareness of power structures, socio-cultural situations and politics. This may require a change in the way ICT4D project staff are trained, recruited and developed or more thoughtful use of multi-disciplinary teams which bring this range of skills together.

Time and resources: long-term interventions

One of the criticisms of Participatory Development and Participatory Design is that it requires more time and/or resources than a traditional approach, especially at the start of a new community engagement (Jacquie Cutts, June 27th 2012; Light & Anderson, 2009; Steen, Kuijt-Evers & Klok, 2007 Cornwall, 2003). The approach proposed in this research, with its added skill requirements on the part of practitioners, its more complex understanding of the social and technical environments and, in particular, its suggestion for processes around Planning for Sustainability throughout the lifecycle of development, could add even more to these time and resource requirements. This may not be a realistic possibility in the current funding climate, and alternative, more pragmatic means of prioritising scarce resources and compromising over ideal practices may be required. However it is achieved – the approach dictates a higher-level view of 'projects' as longer-term programmes of activity rather than as a standalone piece of work – only in this way can a holistic view of empowerment and increasing levels of participant control over time emerge.

Donor policy and funding

In addition to requiring longer-term and less project-focused funding – something that has been demanded of donors for a long time already (Maria Zaghi, June 15th 2012), the iterative process in

this approach also requires an attitude where experimentation is embraced and failure acknowledged and learned from, rather than a focus on specific measurable objectives defined at the start of a project.   This is a difficult transition for funders whose focus is normally on measuring the direct and immediate impact of their budgets.

The need to involve local communities as early as possible in the process (i.e. when establishing the needs and goals, not just in the design of a solution) may dictate a very different model of funding altogether – perhaps a model where a participatory and exploratory relationship is built with a community initially to identify their needs, and only then is further funding made available for specific development activities, and a suitable NGO or other organisation identified who can deliver this.   This could potentially reverse the power-relationship between the community and the external partner.   The Zapatistas in Mexico already operate in this manner, interviewing' NGOs who want to work in their area to ensure their work is a match with the community's own goals (Muñoz 2006).   Safe Mothers Safe Babies embodies this to an extent also, with the community defining the projects to be undertaken - although their general focus is pre-determined by their mission of maternal and child health (Jacquie Cutts, June 27th 2012).

Participatory methods and techniques
It is apparent from both the theoretical research and the case-studies/interviews that different participatory ICT4D projects draw on different methodologies and techniques – from Participatory Urban Appraisal, from Participatory Design but there are also techniques to draw on from wider disciplines such as participatory geography, interactive arts, urban planning, etc.   These disciplines could be complementary if brought together in a thoughtful manner (not just as an arbitrary collection of different techniques), with the different schools of thought seeming to apply more appropriately at different stages of technological awareness.

If ICT4D practitioners were able to draw on these different techniques in a knowledgeable manner, it is likely this would have a positive impact on the success of their delivery. A consolidated 'toolkit' drawing together these different techniques, with some guidance on where they are most useful would be invaluable.

D5. Conclusions

Summary and closing comments
This paper suggests that conventional measures associated with ICT4D project evaluation may need extending, from the conventional criteria associated with evaluations of apparently successful projects to include sustainability and empowerment objectives.   This critical review of research and practice suggests that increased participation is a requirement for better project results, as well as sustainability and empowerment.   However, both the theory and the case studies highlight how critical it is to get this participation right, and not overlook complex technical and socio-political issues such as power structures, people's ability to participate, and the concepts of latent need and technological empowerment.   The proposed approach deduced from this research would seem to have value in regards to overcoming these problems, based on both a critical review of literature and theory and its applicability to real-world projects.

In particular, with its high focus on sustainability and planning for this from the start, it is hoped that it may help to counter the 'high failure rate of ICT4D projects in terms of uptake, even when a functional application is developed' (Light and Anderson 2009).   To truly embody the principles of

the proposed approach, an independent 'matchmaking' organisation would be an ideal actor - embedded in the community but with strong links with various funders and other delivery organisations, NGOs etc. This would help build partnerships capable of delivering what the community identifies as its core need. This intermediary organisation could also take a much stronger responsibility for ensuring the complex areas of political/power issues, inclusion, planning for sustainability and learning/capacity-building are fully planned and delivered, reducing the need for already existing large NGOs to adapt to an entirely new way of working. This would be an interesting area to explore further.

It is clear that, from a long history of partial or total failure, ICT4D remains a long way away from achieving its empowering and emancipatory potential, and many of the claims of the game-changing nature of modern technology remain unfulfilled. Yet, in today's increasingly globalised and inter-connected world, where technology plays such a major role and to some extent shapes the rules of the game, remaining outside of and not in control of this technology limits the freedoms available to developing communities. It is hoped that, taking wider socio-technical views of the problems, as has been done in this research, may help to move discussion and practice forward to the point where ICT can begin to be taken control of by communities in developing countries, and where they can begin to realise its transformational potential.

Addressing limitations through future research
The vagaries of the testing against the available evidence clearly show that the reliance on a small number of projects for analysis is a weakness. For a piece of work seeking results relevant to the whole discipline of ICT4D, analysis of a wider range of projects would be desirable. This is particularly problematic for some of the more nuanced political factors such as understanding local power structures, or the role of the local/national governments, which did not arise in discussions of the projects studied. For a more robust test of the proposed framework, it would need to be applied across a wider range of projects, regions and cultures. The research is also limited by the subjectivity of the interpretation of the results and their adaptation into an analytical framework; something which more collective interpretation processes might address in future.

Appendix A: List of interviews

Over thirty projects were initially investigated, and then some reading was undertaken on the 16 projects listed below:

Project / Organisation	Country
Fair Tracing	Chile & India
Sarvodaya-Fusion	Sri Lanka
Digital Green	India (and globally)
MSSRF	India
Safe Mothers Safe Babies	Uganda
Map Kibera	Kenya
Cidade de Deus	Brazil
e-Choupal	India
Gyandoot	India
e-Sagu	India
VeSEL	VeSEL
TDSCP (UThukela District Child Survival Project)	South Africa
NABUUR	Global (based in Netherlands)
The Urban Mediator	Finland
Charcoal Briquette Network	Kenya (and London)
ICT Incubator Centre	Guatemala

On this basis, a core set of interviewees was identified, as described below.

Interviewees from the five core projects being researched:

Project	Role	Name	Organisation/Employer	Date/Time of Skype Interview
Fair Tracing	Research Director	Ann Light	University of Northumbria	26/06/2012 09:30 GMT
Sarvodaya-Fusion	Project Director	Harsha Liyange	eNovation 4D	03/07/2012 14:00 GMT
Digital Green	Project Manager	Shreya Agarwal	Digital Green	14/06/2012 10:00 GMT
Safe Mothers Safe Babies	Founder	Jacquie Cutts	Safe Mothers Safe Babies	27/06/2012 15:00 GMT
MSSRF	No interviewee available			

Interviewees from other projects:

Project	Name	Date/Time of Skype Interview
Charcoal Briquette Network	Wyn Griffiths	26/06/2012, 14:00 GMT
ICT4D Incubator Centre	Maria Zaghi	15/06/2012, 15:00 GMT
n/a (expert on telecentres and Community Informatics)	Dr Michael Gurstein	19/06/2012, 17:00 GMT
The Urban Mediator	Joanna Saad-Sulonen	25/06/2012, 15:30 GMT

All interviewees saw a copy of the script/description in Appendix B and signed and returned consent forms.

Participants in the face-to-face group discussions at DIS2012 (all-day 11th June 2012):

Name	Organisation
Ann Light	University of Northumbria (UK)
John Vines	University of Newcastle (UK)
Jane Dudman	University of Newcastle (UK)
Peter Wright	University of Newcastle (UK)
Wyn Griffiths	University of Middlesex (UK)
Keir Williams	Queen Mary University (UK)
Joanna Saad-Sulonen	Aalto University (Finland)
Christian Dindler	Aarhus University (Denmark)

Appendix B: Interview script

Copy of interview preparation and question outline sent to each participant is below:

About the researcher
My background is primarily working in ICT/Web Strategy in the voluntary, public and private sector in the UK – most often exploring how to utilise technology with disadvantaged groups to combat issues of social exclusion. I am now studying to move into International Development, retaining a focus on the most suitable and appropriate way to use technology to help people improve their lives.

Introduction to my research
My research is focused around understanding the barriers preventing participation being undertaken more often, and more effectively within ICT4D work, and proposing some principles which may help mitigate the problems common to participatory ICT4D across the board. I am specifically interested in understanding:

- Why there appears to be less participation within ICT4D than in more mainstream development work
- What the barriers to participation are - from the donors/agencies, from the local community/participants, from managers/practitioners
- Whether there is a lack of desire or a lack of suitable and appropriate methods and techniques that work for the context of ICT4D
- What problems have been encountered during the participatory processes in ICT4D work, and what lessons have been learned during the same work
- What we can learn from participatory activity in other areas – development studies, participatory ISD, participatory arts, mainstream ICT development etc.

Purpose of the Interview
I will be looking at a range of case-studies of participatory ICT4D projects, and drawing on theoretical critiques of participatory development in general, and looking at how participation is approached in different disciplines. However, I want to supplement this with some first-hand accounts of people who have been directly involved and understand the challenges on-the-ground, and may also shed some insight into the differences or specific challenges that are unique to ICT4D because of its cross-disciplinary nature.

Questions/themes of discussion

Context (5-10mins)

      1. Please briefly explain the project, your role, and in what way it was participatory?

      2. Which phases of the project were the participants involved in (e.g. planning, design, delivery, evaluation); how were the specific participants selected? Was any work undertaken with them before the project to build trust/relationships?

Motivation and barriers (5-10mins)

      3. Were there any barriers or resistance to taking this approach from any of the stakeholders or participants?

Results (5-10mins)

      4. What do you feel was the benefit to taking this approach (either in terms of better/worse project results, or 'incidental' (capacity/learning) benefits of the participatory process itself, for the community as a whole and/or for the individuals actively participating) - were there any specific successes, or any problem with the process itself?

      5. How did the project/participation end – was there a sustainable outcome, a handover, a natural end or..?

Reflections (15-30mins)

      6. Which participatory methods, tools and techniques were used, and why were they chosen? Do you feel they were appropriate for ICT4D or could you have benefitted from using different methods, and are you aware of others?

      7. What processes were used for making decisions; were there any tensions between new and existing decision-making processes, issues with group dynamics etc..?

      8. What attitude did you take towards achieving consensus while also listening to dissenting voices?

      9. Did you encounter any issues relating to power – between different groups within the participants, or between them and external stakeholders?

      10. Are there any other interesting reflections or lessons-learned that you'd like to share that we haven't covered? Especially any recommendations on what you think would enable you/someone else to overcome barriers to successful participation more effectively?

What next?

I will write up certain quotations and/or summarise extracts of the interview which may be included as part of my final research.

- Would you like an opportunity to see any quotes from yourself and correct any facts before I use them?
- Would you interested in seeing a final version of the research paper once it is completed?

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