

## Forum

# Development Informatics in a Changing World: Reflections from ICTD2010/2012

**Geoff Walsham**  
g.walsham@jbs.cam.ac.uk  
Emeritus Professor  
Judge Business School  
University of Cambridge  
Cambridge CB2 1AG  
UK

**Geoff Walsham**

## Introduction

In my keynote speech to ICTD2010 in London on which this Forum piece is based, I presented four future challenges for development informatics in a changing world: an explicit focus on the D for development; interdisciplinary research; working at the strategic policy level; and recognizing the importance of new ICT-enabled models. I also attended ICTD2012 in Atlanta, and I reflected during that event on whether and to what extent the ICTD field, as represented at the conference, was addressing my earlier challenges. One of the editors of *ITID* suggested that I might write something for the journal along those lines. This short article is the outcome.

In what follows I take each of the four challenges referred to above and I attempt to answer the following questions. What needs to be done? Why is this important? What are the major hurdles in achieving it? How well did we seem to be addressing the challenge at ICTD2012? I want to end this brief introduction with two disclaimers. First, these are huge topics, and I do not have the “right” answers. I am merely raising some issues that I consider important and am expressing my views on them. Second, my reflections on ICTD2012 are biased by the fact that I was unable to attend some of the sessions, particularly those taking place in parallel streams, so I have a limited view of what was on offer at the conference.

## Explicit Focus on the D for Development

Although the word *development* is included as one of the keywords in the title of our field, its meaning is less clear than the ICT part. For example, Brown and Grant (2010) noted that we need to distinguish between ICT use in developing countries and ICT for development. The former might include applications in the software outsourcing industry, which, while perhaps valuable in themselves, do not necessarily contribute to the development of the poor. Walsham (2010) argued that many ICT-based initiatives have taken place in India over the last decade, but the beneficiaries are almost never the poorest or most disadvantaged groups. However, even if we try to focus on development of the underprivileged, there are many theories regarding development, and these shift over time. Heeks (2006) provided brief examples of some theories and argued that it is important for our field to move beyond the mere application of ICT to theorizing its use in addressing development issues.

Some existing work does, indeed, address this relative lack of theoriz-

## DEVELOPMENT INFORMATICS IN A CHANGING WORLD

ing. For example, Madon (2009) wrote about e-governance for development in the context of India. She drew on the sociology of development approach to argue that technology projects aimed at development goals in specific contexts should not be studied in isolation, but instead in conjunction with a deep investigation of the historical processes of development and governance that have evolved over time in that context. Madon mentioned in her book the influential work of the Nobel Laureate Amartya Sen (e.g., Sen, 1999). Sen criticized the traditional economic view of development as too narrow and proposed instead his “development as freedom” approach, with a focus on capabilities for people to achieve what they themselves consider to be valuable. A number of authors in the ICTD space have drawn on Sen’s work to theorize development and its connection with technologies (e.g., Kleine, 2010; Zheng, 2009).

The above writers reflect an increasing interest in theorizing the D in ICTD work, but they still come across as the exception rather than the rule, in the sense that many articles in the field do not explicitly define the meaning of development. Why is this the case? I would like to suggest two possible explanations. On the one hand, many people working in the ICTD field are technologists—or, at least, those with an enthusiasm for technology. It requires a major change of approach for such people to enter the radically different domain of social science. I was talking to a young computer scientist at the Atlanta conference about development and its theorists, and he said to me, “Who is Amartya Sen?” On the other hand, from the opposite end of the spectrum, those working in disciplinary fields such as development studies have perhaps been somewhat slow in realizing and theorizing the importance of ICTs, although there are exceptions (e.g., D’Costa, 2003; Wade, 2002). A number of years ago, I had a paper rejected by a mainstream development studies journal without review, solely on the grounds that technology and development were not part of their remit! There are signs that this is changing. In a recent publication, the guru of participative development, Robert Chambers, wrote about the “cornucopia of potentials through email, internet, video conferencing, participatory GIS, mobile phones, SMS, blogging, Twitter and beyond, a whole new domain of participatory interaction has opened up” (Chambers, 2010, p. 29).

So there are signs of change on the part of both technologists and social scientists toward a coming together around theorizing ICTD from both perspectives. How well was this reflected at ICTD2012? Frankly, I was a little disappointed. It is true that there were events, such as a panel on the relevance of Sen to ICTD research and another on human-centered development that explicitly addressed the issue. However, the formal conference papers, or at least those I attended, did not normally theorize development in any specific way or indeed refer to the term directly. Of course, it could be argued that many of the projects concerned health, education, and other topics that are surely part of the development agenda. Yes, but that is not enough. Important questions remain, such as what type of development is being supported, which groups benefit and which do not, whether the development is sustainable, and how we should evaluate the development impact. Perhaps we should require all papers submitted to subsequent ICTD events to make some explicit reference to development and their theorization of it. We would be dismissive of any paper submitted to an ICTD conference that largely ignored the ICT part, so why not the same treatment for the D part?

### Interdisciplinary Research

One way to bring together the ICT and D parts of our field is to engage in interdisciplinary work. Many disciplines have something to offer the ICTD field, including anthropology, sociology, development studies, computer science, information systems, and geography. We all bring something different to the party, and few people would disagree with the view that ICTD is essentially an interdisciplinary space. One approach, therefore, is to bring together teams from different disciplinary backgrounds to work together and to be engaged in multidisciplinary approaches to intervention (Parmar, 2009).

However, although widely recognized as important, interdisciplinary work is difficult. Burrell and Toyama (2009) identified underlying differences in epistemology as one reason that researchers from different disciplines often find it hard to work together. Another reason concerns the whole business of academic publishing. Different disciplines have different views on what are acceptable research outlets. Do conference papers count? Are

books important, or are they dismissed as not peer reviewed? I work in a business school, and there is an increasing—and, in my view, unfortunate—tendency toward hierarchical lists of acceptable journals. For example, *ITID* is not normally on such lists. These issues perhaps may be ignored by established academics with tenure (although even they are not immune), but they are crucial issues for people earlier in their career. Interdisciplinary work may be the right thing to do for an ICTD researcher, but promotion and prestige in particular disciplinary areas tend to be biased toward contribution in that specific discipline.

I have no simple answer to this dilemma of a tension between the desirability of interdisciplinary work and the realities of current social structures of academic prestige and reward. However, I do think it is possible to retain one's disciplinary base—in my own case, information systems—while maintaining a relatively open and welcoming approach to the contributions of other disciplines. Bryant and Land (2012) quote a definition of *transdisciplinary* that I think summarizes this well:

To hold on to both the specificity of particular ways of thinking and knowing that define disciplines, while creating the space of their productive encounter so that a different kind of knowledge emerges in the act of intersection and traverse of varied fields through which a shared concept might travel.

How well did ICTD2012 do in being such a transdisciplinary space? On the positive side, the conference was remarkable in the breadth of disciplines represented. A substantial number of practitioners attended, adding a further broad dimension. In addition, the formal papers included some reports of interdisciplinary work, and the panels and other open sessions often used panelists and contributors from a varied disciplinary base.

I have two qualifiers to this rosy picture of interdisciplinary togetherness. First, it was evident on a number of occasions that particular researchers saw their role as solely related to their own discipline. For example, in response to a social science question from the floor, one presenter replied, “Oh, I can't answer that; you need to ask my anthropological colleague [who was not present at the conference].” I recognize that we can't be experts in all disciplines, but surely we need to engage seriously with ques-

tions that go beyond our disciplinary base if we are to create the productive encounters referred to in the transdisciplinary definition quoted here. My second qualifier on ICTD2012's interdisciplinarity is that, even though all delegates attended the same conference, my subjective impression is that there was a tendency for people to attend their own type of session. So, for example, were the open sessions on anthropology attended by lots of computer scientists? I suspect not. Perhaps we need keynote or other plenary sessions at subsequent conferences that explicitly reach out to nonsubject specialists rather than locating such activities in parallel streams that can easily be avoided.

### Working at the Strategic Policy Level

One area that is clearly interdisciplinary in nature is that of strategic policy. The existing literature on ICTD contains many examples of what can be termed *implementation studies*—the study of a particular technology or approach in a specific context. There is much less published work that seeks to inform policy concerning ways in which ICT can serve broader, more strategic developmental objectives. This is not an argument against “point” implementation studies as such, but rather an appeal for more research work to be directed toward understanding and supporting broader strategic objectives.

Thompson and Walsham (2010) develop this theme in the context of Africa, identifying four strategic dimensions where ICT is argued to be a significant enabler for transformational development. The first of these is building institutional infrastructure, and an example is the work of Braa, Hanseth, Heywood, Mohammed, and Shaw (2007) on the Health Information Systems Programme (HISP). HISP involves a 15-year research program to improve information for action in the health sector based on health information systems and human capacity building. A second strategic objective where ICT has a significant contribution to make is the promotion of social justice; an example is how SMS and mobile phones can support mobile activism in Africa (Ekine, 2010). Third, a strategic developmental objective is to support economic activity for the poor, and the M-PESA system that started in Kenya is a good example (Moraczynski, 2009).

## DEVELOPMENT INFORMATICS IN A CHANGING WORLD

Finally, Jordan's approach to ICT-led development (Al-Jaghoub & Westrup, 2003) illustrates the strategic goal of providing access to global markets and resources.

One contribution at ICTD2012 that directly addressed the policy arena was the interesting keynote address by Omobola Johnson, the Nigerian ICT minister. She identified a key strategic objective of Nigeria as how to transition to a nonextractive-based economy, and she viewed ICT as crucial to this transition. She also argued for the need to move toward inclusive development for all Nigerians rather than selective development for the privileged. She identified seven key strategic areas for ICT-based effort, including good infrastructure, the development of government services, contributions to particular sectors such as education and health, skills development, and the stimulation of ICT-based entrepreneurship and innovation. She was asked from the floor about how the ICTD community could help, and her response was that we needed research that would aid policy formulation and assessment of its results.

To what extent did the papers and open sessions at ICTD2012 meet the challenge to address strategic policy issues as discussed above? Few of the published papers tackled such issues directly. This does not mean that they were bad papers per se, nor that the work had no policy implications. The labeling of the sessions is interesting in this respect: Supporting Practice, Reconsidering Stances, Understanding Behaviours, Utilizing Elements, and Expanding Participation. These all have a relatively micro or bottom-up feel to them. Similarly, although the open sessions were diverse, few of them focused on or even mentioned the policy dimension, at least in their abstracts. Exceptions to this included the sessions on Mobiles, Social Media, and Democracy; The Role of ICT in Post-Conflict Situations; and Gender and ICT Empowerment.

Why might it be the case that little explicit emphasis was given to policy issues at ICTD2012, except in the minister's keynote address and a few of the sessions? It may be because the disciplines represented tend to be more oriented to studies of point implementations. For example, for different reasons, both computer scientists and anthropologists tend to focus on the specifics of particular implementation contexts rather than on general policy. I want to make it clear that I am not saying that

the design science focus of computer science or the subtle study of context by anthropologists is of little value. On the contrary, they can be of high value if done well. What I am arguing, however, is that these micro studies perhaps need to be balanced in the ICTD field more generally with work that focuses at the strategic policy level. Otherwise, the appeals for help to the community, such as that made by the Nigerian minister, may not be heard. Perhaps the next ICTD conference could address the issue of strategic policy directly in its call for papers and other contributions.

### The Importance of New ICT-Enabled Models

At the levels of both strategic policy and project implementation, a key contribution that is being looked for are new ICT-enabled models that can transform the processes and structures of development. Heeks (2010) refers to this as Development 2.0 (see also Thompson, 2008), and he gives some examples of transformative processes based on ICT. One area is "connecting the excluded," with an example of job advertisements via SMS. A second area is "digital production," illustrated through text translation into local languages via mobile phone crowdsourcing. Third, Heeks (2010) describes "new social enterprise models" of development, with an example of poor women in the Indian state of Kerala doing state government data entry and digitization of records. Heeks and Arun (2010) call this "social outsourcing," which requires intervention at both the strategic policy level as to who can be involved in outsourcing and at the implementation level of particular outsourcing efforts.

The Keralan case is also an example of support for a further aim of development: to transform the role of women. An excellent book by Buskens and Webb (*African Women and ICTs*, 2009) addresses this theme in the context of Africa and demonstrates the diversity and complexity of African women's experiences with ICT. Strong evidence is provided that mobile phones, for example, can empower women in a number of ways, such as enabling economic activity on their part. However, old male-dominated hierarchies persist, and the use of mobiles for economic activity does not necessarily enhance women's status in their communities. The book is a valuable antidote to both technological

utopianism and technological dystopianism. Technology can be of value in transforming the lives of women, but it is not a silver bullet that removes traditional patriarchal attitudes by itself.

ICTD2012 was perhaps at its strongest on this dimension of new IT-enabled models of development. For example, one of the two keynote addresses was given by David Kobia, the director of technology development at Ushahidi. *Ushahidi*, which means testimony or witness in Kiswahili, had its origins in the postelection violence in Kenya in 2008. The system provides a crowdsourced, map-based system to monitor and display data with inputs from text messages, photos, online posts, Twitter, and so on. The software is open source and has already been adapted for use in a variety of contexts, including disasters, conflicts, and emergencies. The transformative element of Ushahidi is in its enabling potential for people at all levels of society to participate in and see what is happening in their own context.

In addition to this keynote address, there were many other examples of new ICT-enabled models at the conference in sectors such as health, education, and e-government. For example, Mudliar, Donner, and Thies (2012) described an interesting example of an ICT-enabled form of citizen journalism in rural areas of the Indian state of Chhatisgarh. The focus of the study was on a system called CGNet Swara, which enables mobile phone callers to record messages of local interest and to listen to messages that others have recorded. The analysis contributes to an increased understanding of voice-based media as a vehicle for social inclusion in remote and underprivileged communities.

Mudliar, Donner, and Thies' article is an example of the solid core of contributions at ICTD2012 that addressed the issue of new ICT-enabled models of development. These are to be welcomed, but I would like to add a qualifier using the article by Avgerou (2008). She argued that three discourses can be identified in the literature on ICT implementation and associated organizational and social change: as a process of technology and knowledge transfer and adaptation to new conditions; as a process of socially embedded action; and as a process of techno-organizational intervention associated with global politics and economics. My own reading of ICTD2012 is that the first two discourses were well represented at the conference, whereas the

third was largely absent. In other words, few papers explored global political issues in domains such as health care and education, for example, which influenced the type of ICT-enabled interventions that took place. Putting it another way, political scientists were less evident at the conference than computer scientists.

## Conclusions

I first started working in what we now call the ICTD field around 30 years ago in India, and I remember being told on a number of occasions at that time that computers and related technologies were not relevant to development. Few people would adopt this view now, and the ICTD field in the last decade or so has really taken off (Gomez, Baron, & Fiore-Silfvast, 2012). However, while I think we should welcome the explosion of work now taking place, it is particularly important that we reflect carefully on what we have achieved to date and how we should position ourselves for the future. This short article is a contribution to such a debate.

I will end with a summary of some key points I have suggested for future work in the ICTD field. These are not proposed as replacements for existing approaches but rather as modifications or extensions of current research agendas. First, I would like to see a more explicit focus on theorizing the D for development in ICTD. Second, I think we need to move beyond multidisciplinary as currently enacted toward closer collaboration in a transdisciplinary framework. Third, research on strategic policy would be a valuable complement to the more usual local implementation studies. Finally, while I welcome the focus on new ICT-enabled models, I would like to see a more sophisticated political view as to who is pushing which technologies and why. I look forward to reflecting further on such issues at the next ICTD conference in Cape Town in December 2013. ■

## References

- Al-Jaghoub, S., & Westrup, C. (2003). Jordan and ICT-led development: Towards a competition state? *Information Technology & People*, 10(1), 57–69.
- Avgerou, C. (2008). Information systems in developing countries: A critical research review. *Journal of Information Technology*, 23(3), 133–146.

## DEVELOPMENT INFORMATICS IN A CHANGING WORLD

- Braa, J., Hanseth, O., Heywood, A., Mohammed, W., & Shaw, V. (2007). Developing health information systems in developing countries: The flexible standards strategy. *MIS Quarterly*, 31(2), 381–402.
- Brown, A. E., & Grant, G. G. (2010). Highlighting the duality of the ICT and development research agenda. *Information Technology for Development*, 16(2), 96–111.
- Bryant, A., & Land, F. (2012). Discursive formations and trans-disciplinary agendas: A response to Walsham. *Journal of Information Technology*, 27(3), 249–254.
- Burrell, J., & Toyama, K. (2009). What constitutes good ICTD research? *Information Technologies & International Development*, 5(3), 82–94.
- Buskens, I., & Webb, A. (Eds.). (2009). *African women and ICTs*. Pretoria, South Africa: Unisa Press.
- Chambers, R. (2010). *Paradigms, poverty and adaptive pluralism*. (Working paper no. 344), Institute of Development Studies, University of Sussex.
- D'Costa, P. (2003). Uneven and combined development: Understanding India's software exports. *World Development*, 31(1), 211–226.
- Ekine, S. (Ed.). (2010). *SMS uprising: Mobile activism in Africa*. Cape Town, South Africa: Pamzabuka Press.
- Gomez, R., Baron, L. F., & Fiore-Silfvast, B. (2012). The changing field of ICTD: Content analysis of research published in selected journals and conferences, 2000–2010. *Proceedings of ICTD 2012, ACM* (pp. 65–74).
- Heeks, R. (2006). Theorizing ICT4D research. *Information Technologies & International Development*, 3(3), 1–4.
- Heeks, R. (2010). Development 2.0: The IT-enabled transformation of international development. *Communications of the ACM*, 53(4), 22–24.
- Heeks, R., & Arun, S. (2010). Social outsourcing as a development tool: The impact of outsourcing IT services to women's social enterprises in Kerala. *Journal of International Development*, 22(4), 441–454.
- Kleine, D. (2010). ICT4What?—Using the choice framework to operationalise the capability approach to development. *Journal of International Development*, 22(5), 674–692.
- Madon, S. (2009). *E-governance for development: A focus on rural India*. New York, NY: Palgrave Macmillan.
- Moraczynski, O. (2009). Exploring the usage and impact of 'transformational' mobile financial services: The case of M-Pesa in Kenya. *Journal of East African Studies*, 3(3), 509–525.
- Mudliar, A., Donner, J., & Thies, W. (2012). Emergent practices around CGNet Swara, a voice forum for citizen journalism in rural India. *Proceedings of ICTD 2012, ACM* (pp. 159–168).
- Parmar, V. (2009). A multidisciplinary approach to ICT development. *Information Technologies & International Development*, 5(4), 89–96.
- Sen, A. (1999). *Development as freedom*. Oxford, UK: Oxford University Press.
- Thompson, M. (2008). ICT and development studies: Towards development 2.0. *Journal of International Development*, 20(6), 821–835.
- Thompson, M., & Walsham, G. (2010). ICT research in Africa: Need for a strategic development focus. *Information Technology for Development*, 16(2), 112–127.
- Wade, R. H. (2002). Bridging the digital divide: New route to development or new form of dependency? *Global Governance*, 8(4), 443–466.
- Walsham, G. (2010). ICTs for the broader development of India: An analysis of the literature. *Electronic Journal of Information Systems in Developing Countries*, 41(4), 1–20.
- Zheng, Y. (2009). Different spaces for e-development: What can we learn from the capability approach? *Information Technology for Development*, 15(2), 66–82.