Preface

The coming of age of the Personal Computer and the opening up of the Internet, particularly the World Wide Web, in the 1990s made possible reaching a much wider portion of populations. Technological determinists as well as social activists saw the potential of deploying networked computers to the general citizenry, and internet cafés and telecentres were established. Over the past almost two decades only a handful of very poor countries did not get onto this bandwagon. The past twenty years have also seen a convergence of different traditional media, or at the very least the spread of computing power to many other non-traditional computer domains, including domestic appliances, motorcars, mobile phones, entertainment, in short, incorporated into most traditional industries and products.

This book does not cover the entire range of computing, but focuses on Information and Communication Technologies for Development (ICT4D). ICT incorporates any technology used for communication and information - including paper! The “development” part indicates a focus on social development, which can mean many different things, depending on point of view, ideology and assumptions. ICT4D research may include investigating highly technological computer engineering topics, for example creating a network mesh using discarded food cans as antennae, as was done by the Meraka Institute in South Africa. Such research is necessary, but the focus in this book is not on such hardcore mechanistic aspects of ICT4D. Our focus is on the thus far neglected social side of computing, the users, and the design of systems that meet the needs of “ordinary” users, not on business systems, government systems, military systems, or such large enterprise systems, but on social systems. To distinguish this effort from hardcore ICT4D, we use the term ‘Development Informatics’. Graeme Johanson’s contribution (Delineating the Meaning and Value of Development Informatics) summarises different views on this new field.

The world is diverse, though with the smaller proportion of its population much more privileged than the majority, as indicated by buzz word such as the divide, and in our context, the digital divide. Efforts to deploy telecentres in more affluent communities (the have) have not been as successful as hoped for, but in the poorer regions (the have nots), the situation is far worse. A good number of public ICT services are reportedly successful, but the majority seem to have been failures, with the most important reason for failure typically presented as a lack of economic sustainability of such centres.

Having personally observed more failures than successes over the past decade, the original impetus for this book set was an attempt to find reasons for unsuccessful projects by drawing upon experiences from all over the world. If projects are unsuccessful, or do not meet goals, an extraordinary amount of money is wasted that could rather be used for other purposes. The chapters serve as examples of trends and results that support informal conclusions drawn from personal experience over the past decade. The implications drawn in the Introduction from the chapters should not be viewed as committing the logical errors of over-generalization, cherry picking, or of composition. On the contrary, the chapters serve as points of illustration in support of informal observations.
It is claimed that since the 1960s more than 1 trillion US dollars has been donated as aid to African countries alone (Dambisa Moyo 2009 - *Dead Aid: Why Aid is Not Working and How There is a Better Way For Africa*). Worldwide, the figure must be astounding – perhaps as much as 2.3 trillion US dollars (Easterly 2006). Figures of support for ICT projects are lacking, but must be comparatively large. Yet despite all this money spent, a very strong case can be made that there is little to show for it.

This is not surprising, as there are no special theories of ICT for Development, and few models by which to measure success, while the dominant model seems to be biased toward a particular cultural-specific view of economics, namely neo-liberal capitalism. In fact, despite a large body of literature available, particularly on the Web, very little scientific or systematic research is done on ICT4D. Reasons for success or failure are not always clear or are not clearly understood, methodologies are often vague, metrics for success in many cases are lacking. Proposed models address only part of the complexity. This is to be expected from a young discipline which seems to be dominated by social activists at grassroots level, but it is sponsored by governments, non-government organisations (NGOs), donors and aid-givers, all of which are understandably anxious for a more accountable analysis of the benefits of expended resources, hence success stories seem to be exaggerated, if not fabricated, or ignore the negative impacts on other spheres of social complexity. The claimed success of mobile phones used by fishermen in Kerala comes to mind in this context.

The question whether ICT leads to growth (particularly economic growth) is still unanswered, and requires fuller research. It might be very difficult to determine ultimately, despite many sweeping and unfounded claims, as perhaps ICT effects are indirect. Saeed Moshiri and Somaieh Nikpoor (*International ICT Spillover*) investigate the economic effects of ICT, particularly spillover, which in essence refers to the much more difficult to measure secondary benefits, such as raising productivity through changes in organization, labour structure, and human resource management. They conclude that a 1% rise in the ICT investment rate will lead to 0.16% increase in economic growth in developed countries, but only 0.03% in developing countries. Similarly, the spillover effect is larger in developed countries than in developing countries. They further conclude that there is a positive correlation between ICT investment and economic growth, and wish to make a case that developing countries should invest in ICT, but caution against a technological deterministic view. If their view is accepted, this should affect ICT policies. But the figures are not been verified as yet.

That implementation of ICT does not automatically or necessarily have an economic effect on a community could be one implication of Kenneth Pigg’s chapter in this book (*Information Communication Technology and its Impact on Rural Community Economic Development*). The introduction of broadband into rural communities in the USA does not seem to have made any difference to local economies for a period of over a decade.

A further implication of Pigg’s chapter is devastating news to social activists and technological determinists who wish to “uplift” the developing world by connecting it. In one of the most advanced countries on this globe, the USA, rural communities do not use broadband optimally, so the question is then, why would it make a difference to the poorer regions of the world? Is it only wishful thinking?

This also seems to be the case in other very highly developed countries. Sweden is one of the richest countries in the world, yet Duncan Timms and Sara Ferlander report in their chapter (*Social Capital and Third Places through the Internet: Lessons from a Disadvantaged Swedish Community*) that even in a Stockholm suburb a telecentre was unsuccessful for various reasons. Forcing technology onto communities does not result in its uptake (or appropriation) of that technology as foreseen by those in power (not only party politics, but any role players with power, including well-meaning NGO’s) to enforce the technology.
Unsuccessful ICT projects are also found within communities which have been exposed to modern ICT for half a century of TV broadcast, of exceptional telecommunication services, compared to the rest of the world, and of a very high standard of living. If exposure to modern media indeed influences the uptake of, for example, internet technologies, as Pippa Norris (2003) proposes, making the adoption of new media technologies easier, then these two factors imply that the developing world will remain behind, possibly with a growing gap in the divide, for at least well into the second half of this century - except if some amazing technological breakthrough occurs. Connectivity, especially broadband, is just too expensive to have a 100% penetration into every community, and is much less likely in rural communities in the developing world. We have to be realistic about this. Secondly, there has not been much exposure to modern technologies among deep rural communities in the developing world, so culturally they are not ready for concomitant change. This has been demonstrated well by contributions covering regions such as in Peru and Chile in ICTs for Global Development and Sustainability: Practice and Applications, and in this volume The Gambia (Harvey). At least three issues will prevent uptake of ICTs in rural communities: cost of connectivity, cultural resistance to change, and cultural unreadiness for new media technologies.

The mission of many ICT4D programs seems to be to reduce poverty on the wrong side of the digital divide. Such a mission is based on many assumptions not always made clear in literature. Cristina Kiomi Mori (‘Digital Inclusion’: Are We all Talking about the Same Thing?) analyses variations of this issue and briefly presents the historical development of the notions of the divide and of exclusion versus inclusion. One’s view of the divides is culturally biased. Even well-meaning social activists and donors often do not seem to realize their own cultural biases in their approach to ICT4D. Jasmine Harvey (Cultural acceptance of ICTs: perceptions in practice) reports on cultural variance in The Gambia, mainly due to religious views, and presents a case against technological determinism.

Suely Fragoso, Denise Cogo, and Liliane Dutra Brignol (What Does it Mean, to Bridge the Divide? Learning from Spontaneous Practices towards ICTs) show that the official views of what a community needs in order to overcome the digital divide may not be shared by the community itself. A top-down approach does not work, and neither can politics inform such decisions. Communities need to determine their own needs, while those in power (assuming they serve communities) should make tools available for communities to meet their own needs for the benefit of the greater society.

Peter Kwaku Kyem (A New Development Opportunities Confront Old Paradigms: Exploring the Multiplicity Theory to Combat the Global Digital Divide) finds the modernization approach of donors (such as the Washington Consensus) to be one-sided and simplistic, and argues for a more complex set of approaches to ICT4D. He concludes with an anti-technological deterministic stance that “technical solutions to the complex socio-political and cultural problems of development should never be pursued as ends in themselves”. Kyem attempts to build a case for the need of a new perspective on development that he labels multiplicity theory as an attempt to overcome simplistic contemporary approaches. In brief, multiplicity theory is about bringing the psychological and social aspects into the discussions around ICT4D.

Andrew Thatcher and Mbongi Ndabeni (A Psychological Model to Understand E-Adoption in the Context of the Digital Divide) regard psychological as well as socio-economic factors as important in the adoption of technology, focusing on an inclusive Technology Acceptance Model that acknowledges “the interplay between the potential users, the specific technology, and the environment in which the interactions occur”.

The importance of a more inclusive approach to human development is shared by Steyn (Paradigm
Shift Required for ICT4D) who exposes the assumptions of the economic globalization paradigm that underlies efforts to overcome the digital and other divides by implementing ideologically biased projects and promises. Economic globalization turns humans into economic machines (homo economicus), oversimplifying the complexity of human nature. It is proposed that psychological and social development should be priority, making use of ICT as tools, and that “development” should be defined culturally by local communities. Self-empowerment may indeed lead to economic “development”, but that would be a consequence, and should not be the primary aim of ICT4D.

Fabio Nascimbeni (Networking for Development: Cornerstone for Efficiency and Impact of ICT for Development Projects) shows that international development cooperation projects still seem to adopt models and practices that were conceived for an industrial society, while societies are moving toward the network society. The digital divide is multi-faceted and multidimensional, and the simplistic industrial model not efficient. Nascimbeni is sympathetic to a paradigm that stresses the “appropriate use of ICT, knowledge sharing dynamics, social appropriation of technology, and more attention to the human side of the picture” as opposed to what could be called the dominant technological deterministic approach, as is evident from its assumption that connectivity alone would lead to development.

Chase Laurelle Knowles (The Mirror Meta-Principle: Creating the Context for Culturally Sustainable Development Informatics) offers a mirror theory, which holds that ICT4D systems should be participatively designed to reflect the economic and socio-cultural exigencies and traditions of local developing communities. Again a case is made for “community first”, and more specifically, its local needs.

Scanning through ICT4D literature of reported case studies often raises more questions than it answers. Metrics for success are vague or absent. And there is a lack of consent on how the success or not of ICT4D systems should be assessed and evaluated. Ricardo Ramírez (Participatory Monitoring and Evaluation of ICTs for Development) suggests participatory monitoring and evaluation (M&E), which implies that measuring success should not depend on the implementers (or givers) only, but also on the receivers or users. Aid givers easily fall into the trap of measuring success by their own culturally biased criteria of success, and neglect to ask whether the target community have a similar view. To extend Ramírez’s argument with a hypothetical case: if the mandate of the organization is to install a network, and the network is a technical success, that project can be deemed to be a success, even if the community does not use the network at all, or does not benefit from it. Success will be reported, as the network works technically. But for the community there may be no difference or impact at all.

Nitika Tolani-Brown, Meredith McCormac and Roy Zimmermann (An Analysis of the Research and Impact of ICT in Education in Developing Country Contexts) offer an overview of how ICT4D impacts on education in developing regions. They conclude that the perception that ICT always makes a positive difference is misplaced, and that in the real world the impact of ICTs on learner outcomes is much more complex and varied. ICT is not the magic bullet.

Matthew Clarke (Understanding the Policy Implications of ICT for Development) shows that ICT policies operate with the framework of ‘traditional’ neo-liberal economic theory, while the world has moved on to a new economy, which could perhaps be labelled knowledge economy. The implication is that development within the modern context is constricted by this old view. What is needed are ICT4D policies that consider the new economic realities of the new world.

In this book various authors are – from different perspectives - sympathetic toward the social and human side of ICT4D. This view is quite contrary to the dominant technological deterministic view of ICT4D and its economic globalization premises. Hopefully this book will encourage debate and intellectual discussion on ICT4D, particularly Development Informatics, which in some circles raises
very political and sensitive issues. Too many divergent perspectives on the same practical development problems have confused and caused inertia. The dominant game of having to compete for research funds for development analysis does not lend itself to collaboration. A surprising number of very active participants in the ICT4D arena and high profile activists refused to contribute this book. They strongly believe that the discussion should take place not in an expensive book, but freely on the Web. Such passion is admirable, but in our view somewhat self-destructive. At this moment in publishing history, a compact book still focuses and distills more effectively than the endless Web. This book is intended to encourage intellectual discussions particularly among donor agencies with a social conscience, which would really like to make a difference, but which (perhaps) get the wrong guidance for policy-making.

A more systematic approach to ICT4D that exposes woolly assumptions, and that hopefully eventually will lead to a theory (or theories) of Development Informatics, is urgently required. Too much money is wasted on projects that keep on repeating the same mistakes -- money that could be put to good use. Let us keep the dialogue and theorising rolling, and listen with open minds, not blinded by narrow ideologies or fashionable theories. There is a real need for theoretical synthesis, rigorous case studies, policy models, and practical guidelines. ICT offers useful tools for self-development, and the social development of local communities, while “development” is not necessarily confined to the conventional notion of economic development. Personal and social development may result in more satisfied and happy citizens, who may or may not improve their economic status, but by expanding their minds they may become better equipped to carve out their own niches for themselves and their own spaces in this complex world.

ICTs and Sustainable Solutions for the Digital Divide: Theory and Perspectives focuses on broad themes of paradigms and theory. ICTs for Global Development and Sustainability: Practice and Applications focuses more on case studies from different regions of the globe.

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REFERENCES

