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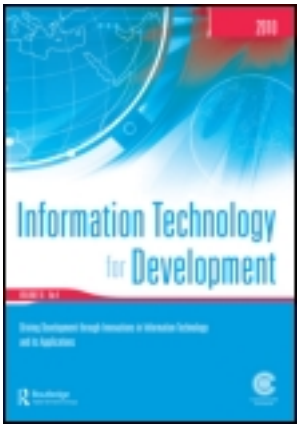

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Development and the promise of technological change

Leiser Silva [a] & Chris Westrup [b]

[a] C.T. Bauer College of Business, University of Houston, 280F Melcher Hall, Houston, Texas, 77204-6282

[b] Manchester Business School, 6.06 Harold Hankins, University of Manchester, Oxford Road, Manchester, M15 6PB, England

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Development and the Promise of Technological Change

Editorial Introduction to the Special Issue

Leiser Silva
C.T. Bauer College of Business, University of Houston, 280F Melcher Hall, Houston, Texas 77204-6282. E-mail: LSilva@uh.edu

Chris Westrup
Manchester Business School, 6.06 Harold Hankins, University of Manchester, Oxford Road, Manchester M15 6PB, England.
E-mail: chris.westrup@manchester.ac.uk

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1. INTRODUCTION

As we write, change seems more apparent than ever, and it is the implications for information and communication technologies (ICT) for development that we wish to discuss here. The restructuring of capital markets in developed countries and the sight of smaller countries seeking assistance from the International Monetary Fund (IMF) call into question a dominant model of governance for development, a neoliberalism in which markets are assumed to be the optimal and preferred mechanism (Stiglitz, 2000). The origin of this financial upheaval was a sustained lending program by market-based institutions such as banks to include the poor of the most powerful country in the world both as future owners of property and as debtors of the financial system. The failure of this subprime lending has significant repercussions for ICT4D both in terms of where the crisis began and its failure to improve conditions for the poor. Recent crises have tended to affect more peripheral countries in the financial system: Argentina in 2002, the East Asian crisis in 1997, and so on. In this current crisis, causes are placed squarely in the behavior of markets in the United States and other developed countries. The question begins to take shape as to whether a model of development that seeks to mimic these approaches is appropriate for developing (and developed) countries either in the use of markets as a mode of development or in the assumption that it will improve the economic and social standing of poor citizens. In a sense, these rapid changes in sentiment cast doubt on how we are to tell histories of ICT4D and what future policy, practice, and objectives might look like. It is unclear where current instabilities might lead, but it is not unreasonable to argue that a questioning of neoliberal political and economic policies and the rise of certain forms of development management are helpful in understanding future roles for ICTs in development. For example, Kevin Gallagher critiques the neoliberal assumption that the integration of countries into a world

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trade system by enabling market access through deregulation, the promotion of free trade, and the enforcement of intellectual property rights leads to increased growth and argues that it is contingent on other factors (Gallagher, 2005, p.5). A key issue turns on the role of the state and its institutions in development. As Rodrik suggests, "[t]he secret of economic growth lies in institutional innovations that are country specific, and that come out of local knowledge and experimentation" (Rodrik, 2004). The point here is that local policy, institutions, and attitudes are central to development and that simply relying on markets doesn't work.

How recipes for development and management more generally move from place to place is an emerging area of study (Cooke & Dar, 2008; Thrift, 2005). The contention of Cooke and Dar (2008) is that there is a pervasive use of managerialism in international development, and they draw attention to a wide range of theorization that identifies homogenizing techniques that emplace asymmetric practices of appropriation and dispossession. A focus on the elaboration of technique is characteristic of such approaches. Drawing on Escobar (1995), they show that the object of development itself is a construction in which managerial practices are complicit and which seeks hegemony and orthodoxy for development while generating alternatives, resistance, and critique. Bill Cooke has, for example, been influential in a long-standing debate on the role of participation in development and whether it remains superficial or can actively redistribute power relations (Cooke & Kothari, 2001). In short, the certainties of a market-based framework of development and the scope of a managerial set of recipes for development are being cast into question.

If economic uncertainty provides a backdrop for questioning accepted practices in development, changes in technology extend a different mode of causation for a reassessment of ICT4D. Recent articles have provided useful overviews of the area (Avgerou, 2008; Raiti, 2006; Walsham, Robey, & Sahay, 2007; Walsham & Sahay, 2006). Interesting claims are being made that change in ICTs (often referred to with the suffix 2.0) is important in reassessing the future contribution of ICT4D and for the discipline of development studies itself (Heeks, 2008; Thompson, 2007). What ICT4D2.0 might be remains open to question though; in parallel with the notion of Web2.0, an emphasis is placed on the importance of mobile communications, a coming ubiquity of network-enabled applications, and a movement to the generation of user-based content. For example, Richard Heeks proposes that an emergence of ICT4D2.0 reframes the subject of development. The poor, in his analysis, need ICT tools but can be active producers of digital content and services that can create new sources of income through ICTs. Innovation within and by the poor is a key focus of an ICT4D2.0 strategy and shares many characteristics with the principles of appropriate technology (Schumacher, 1973). Mark Thompson also contends that changes in technology and the emergence of social (Web2.0) technologies, which foster diversity and collaboration, are important features instigating change in development. Development 2.0, in Thompson's terms, can take the transformative potential of ICTs and remake itself as a more plural and collaborative form. Both authors implicitly or explicitly suggest that cross-disciplinary teams and understanding are becoming pivotal to the deployment of new forms of ICTs. Thus it is clear that the *potential* is being identified for ICT4D to become more accessible and more user-centered. What that emerging debate is seeking to avoid is a charge of technological determinism and, to an extent, it echoes our earlier argument that economic and managerial issues are important for ICT4D. To put it differently, a key concern is one of context. Frequently, ICT4D has restricted itself to what it identifies as the contribution of technologies to development with other relationships being placed in a black box of context. The ICT4D2.0 debate starts to open this box by questioning certain issues of development.

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This, we suggest, is indicative of a changing understanding of context from a relatively passive backdrop to a dynamic conception of context as changing (and changeable) and shot through with political, social, and cultural concerns. Going beyond more conventional managerial and economic analyses discussed earlier, it is plausible to see other aspects of context as becoming increasingly dynamic and important to our understanding of ICT4D.

Three other issues (of what could be termed context) are of increasing significance—a growing population, decreasing resources, and global warming. The world's population is expected to increase by 50% by 2050 to more than 9 billion people. In 1900, it was only 1.5 billion. Resource consumption, according to one calculation, is running at 30% more than can be replenished each year (World Wildlife Fund, 2008). Global warming is finally being accepted as scientific fact and the basis for policy changes. Estimates range from a minimum of somewhat less than 2°C global warming to 6°C by the end of the century from preindustrial levels (Intergovernmental Panel on Climate Change, 2007; Stern, 2006). Even 2°C warming suggests major change with the potential triggering of the melting of the Greenland ice sheet, extensive droughts, rising sea levels, and so on. Those interested in ICTs are rightly cautious when presented with presentments of future disaster. It is not too long ago that the Millennium was forecast to trigger massive failure of ICT systems. Yet these three issues signify both change and inequalities in the *distribution* of that change. To take some examples, the Indian subcontinent, China, and Africa are projected to have large and growing populations; Europe, North America, and Japan to have increasingly elderly populations. Ecological debtor countries (whose resource consumption greatly exceeds the biosphere capacity of that country) include Mexico, the United States, Western Europe, Libya, Egypt, India, China, Thailand, and Japan. Global warming is predicted to affect sea levels (and hence many mega-cities in developed and developing countries) and engender drought conditions in tropical countries. Although some of the effects of these changes seem to mirror the well-known classification of developed and developing countries, others do not, and we appear to be moving into a world in which how the distribution of change falls is varied and unclear. This does not mean that the capacity of certain countries, regions, or groups to respond to or seek to shape such change is evenly spread. In other words, these projected changes may affect groups of developed and developing countries alike, but it is likely that developed countries will continue to have the means to ameliorate such change in comparison with the rest of the world.

We take the upshot of this, admittedly sketchy, summary to be a questioning of notions of development and, by implication, the role and scope of ICTs in development. As discussed earlier, a spirit of questioning and reassessment of ICT4D is becoming more significant. To frame these issues it is possible to draw up an untidy set of interacting problematics. These we categorize, drawing on the above discussion, as follows: (i) the role of markets versus institutional development; (ii) managerialism versus local development; (iii) participation versus inclusion; (iv) technology as driver versus sociotechnical development; (v) environment as context versus environment as sustenance. Assumptions in each of these lead to different assessments of the contribution of ICTs, and perhaps, more radically, of what ICTs are. Equally there are assumptions on what development is and how it is to be managed. In this introduction we wish to simply draw attention to these important issues, the detailed analysis of which is beyond the scope of this article.

It is plausible to point to a clustering of issues in two distinctive approaches. The first (we can call it "conventional wisdom") asserts the primacy of market solutions; the centrality of explicit managerial practice; the importance of technology as a driver of change; an

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assumption of the relative unimportance of context; and the use of participation *qua* communication as the means of engaging workers and other affected parties. This approach has many nuances and much diversity within it, but it is important both in conventional management thinking in Northern countries and in thinking crystallized around the Washington Consensus and perhaps Post-Washington Consensus approaches in Southern countries. The second cluster (that we term an "emerging understanding") asserts the importance of institutions in mediating and regulating markets; the centrality of local adaption; a focus on sociotechnical assemblages; the desirability of inclusion; and a realization that the environment is active, complex, and limiting and cannot be subsumed into context. This second approach has remained marginal in many, particularly Anglo American, Northern countries and has had limited application in Southern ones. What is interesting here is that the shortcomings of the first approach are most strongly recognizable in Southern rather than Northern countries and that, perhaps, the wide-scale introduction of the second approach is more likely to occur in Southern countries.

Taking this one step further, we can suggest that Northern countries represent a *particular* set of conditions that have remained relatively stable over the last sixty or so years. ICTs developed in the North have been framed largely within the assumptions of these particular conditions being normal. That is not to deny that ICTs have been influential in transforming aspects of work and social practice, but to note that these changes take place within a rather stable and restricted set of circumstances. The exciting feature for ICT and development studies is that assumptions that are commonplace and conventional in Northern countries are more easily recognized as problematic in Southern ones. Perhaps the scope of ICT and development is more central than many may realize. It is more than the application of ICTs for development, and it is more than the reshaping of development through engagement with ICTs. This area has the potential to demonstrate that much of conventional wisdom is limited and limiting not just in Southern countries but in Northern ones, too.

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2. THIS ISSUE

In this special issue the overarching theme is taking stock of e-development. This theme has advantages, as it can be addressed in a number of quite different ways. A radical interpretation, as discussed earlier, invites a rethinking of e-development itself. Such a task requires the unpicking of existing notions of development and the contribution of ICTs and leads to a consideration of the continuing usefulness of ideas such as e-development or other terms such as ICT4D. It may be addressed by presenting the contribution of recent ideas in development to the understanding and application of ICTs in this area, or it encourages a confirmation or rethinking, based on experience and theoretical consideration, of the significance of key concepts in ICT4D. This issue contains important elements of these themes.

Zheng takes an interesting approach to the phenomenon of e-development. Instead of emphasizing its electronic component, she focuses on the concept of development. Development is discussed from the point of view of Amartya Sen's ideas on capabilities. For a reader who is beginning to approach the literature on information systems (IS) in developing countries, this article offers a good starting point as it moves away from the widely accepted notion that exclusively equates development with economic progress. Sen's proposed capabilities enrich our conceptualization of development by integrating a deeper and richer human perspective that includes, among others, aspects of freedom, inclusion, and health. This article is provoking for both practitioners and researchers of IS. It invites the

former to re-examine the way IS are designed and evaluated, and it provides the latter with a clearer and richer explanation of an important concept.

Díaz Andrade and Urquhart discuss an ICT project in Peru. Their study shows how the institutionalization of an IS in similar settings will depend on the presence of social capital. Their research illustrates the relevance of leadership and dedication of community leaders for a project to flourish. The leaders and champions of the projects were members of their communities; that gave them a deep understanding of the limitations and opportunities of each place when implementing the IT projects. This article provides us with a lesson regarding the relevance not only of local knowledge but also commitment to one's community—those intangibles that cannot be captured in macro studies. In addition, Díaz Andrade and Urquhart point out the important role played by local organizations and institutions that facilitate the presence and exercise of leadership in relation to ICT projects.

The article by Sahay, Monteiro, and Aanestad on health information systems criticizes the often unchallenged belief that systems integration is not only viable but also desirable. Specifically, they examine the possible political implications that integration may bring about. Their article clearly highlights the narrowness of considering an issue of integration as an exclusive technical problem. Their article concerns the reform of the health sector in Andhra Pradesh, India. Their case illustrates the intense negotiations that have to occur for a system to become institutionalized. The Andhra Pradesh case shows the intertwined relationship between politics and information systems. As the authors clearly noticed, because of their political dependencies, the stability of IS integration will tend to be precarious.

Avgerou, Ganzaroli, Poulymenakou, and Reinhard discuss trust in information technology. However, they do not focus on the relationship between an individual and technology; instead, they concentrate on macro social processes. Their study concerns electronic voting in Brazil. Specifically, they pay attention to the process by virtue of which Brazilians end up trusting their electronic voting system. Their findings highlight the role of institutions, in this case the Brazilian Superior and Regional electoral courts. Avgerou et al. convincingly make the case that trust depended greatly on the reputation of such institutions. This article constitutes an empiric contribution to the literature of IT in developing countries and at the same time opens an avenue for the study of trust in IT in the mainstream literature of IS; it extends the study of trust beyond individualistic approaches.

In the same line of thought (i.e., the studying of processes of institutionalization), Madon, Reinhard, Roode, and Walsham concentrate on digital inclusion projects. Specifically, they study three telecenters: one in India, a second in Africa, and the third in Brazil. The question these authors ask is a relevant one: What are the factors that influence the institutionalization of such telecenters? Their findings suggest four processes related to the following: the symbolic meaning of the centers, government involvement, community activity, and the offering of valuable content. This article offers a deep theoretical explanation to an emergent phenomenon such as the proliferation of telecenters in developing countries. This piece will be of interest not only to IS researchers but also to officials interested in launching similar type of projects.

These articles show a welcome diversity of ICT4D research. They have been selected because they address the issue of taking stock of e-development in ways that can provide resources for future researchers and practitioners in this area. Earlier versions of the articles in this special issue were presented at the International Federation for Information Processing (IFIP9.4) Conference *Taking Stock of E-Development* (May 28–30, 2007) hosted by the

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University of São Paulo, Brazil. The majority of the conference articles are available and may be accessed online at http://www.ifipwg94.org.br/ifip94fullpapers.htm.

More generally we, as editors, thank all those who contributed their time, energy, and enthusiasm to the original conference and to the creation of this special issue. It is this widespread goodwill, interest, and wish to make a difference that are so refreshing and give secure ground for optimism for the future.

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Leiser Silva *is an associate professor in the Decision and Information Sciences Department at the C. T. Bauer College of Business, University of Houston. He holds a Ph.D. in information systems from the London School of Economics and Political Science. His current research examines issues of power and politics in the adoption and implementation of information systems. His research has been published in journals such as MIS Quarterly, Journal of the Association for Information*

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Systems, Communications of the Association for Information Systems, European Journal of Information Systems, Information Systems Journal, Information and Organization, The Information Society, and Information Technology and People.

Chris Westrup *is a senior lecturer at the Manchester Business School. His research focuses on the use of large scale information systems in organizations and on the relationship of information systems to development.*

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