

**ICT Research in Africa:
Need for a Strategic Developmental Focus**

Mark Thompson and Geoff Walsham

Judge Business School
University of Cambridge
Cambridge CB2 1AG
UK

m.thompson@jbs.cam.ac.uk and g.walsham@jbs.cam.ac.uk

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Abstract

This paper argues the need to expand the research agenda on the use of ICT in African countries to include a stronger strategic developmental focus than is evident in much of the literature to date. Four strategic dimensions are identified where ICT arguably has potential as a significant enabler for transformational development in Africa: public infrastructure; governance, accountability and civil society; entrepreneurialism and economic activity; and access to global markets and resources. A representative set of literature on IS in Africa is classified along these dimensions, but an explicit focus on development is found to be lacking in most of this work. The four dimensions are then discussed in turn to describe their importance in the African context, to discuss some pathfinding research examples to date and to identify some directions for future research. The paper concludes with a call for IS researchers working on Africa to become involved in debate on national and international policy from an ICT perspective and to engage with other research communities in doing this, notably with those concerned with the field of African development.

Keywords: Africa, development, ICT, policy, IS research agenda

Introduction

We argue in this paper that there is something of a paradox in an unprecedented level of interest in the use of ICT for developmental aims within the African context, but little IS literature that actually engages with ‘development’ in any explicit way. Whilst there is a growing literature about ICT in Africa, much work to date has focused on ‘point’ implementations of ICT in African contexts, rather than seeking to inform policy concerning ways in which ICT can serve broader, more strategic developmental objectives.

In our view, this lack of a ‘strategic’, developmental focus in the literature to date may be in part because ‘development’ itself is an extremely contested concept, and explicit engagement with its aims requires a familiarity with the development literature, as well as a willingness to engage openly with other research disciplines. Furthermore, two additional difficulties exist in particular relation to ICT in Africa. First, the concept of ‘development’ has specific contours, or characteristics, within an African context, which need to be identified, discussed and established as valid and useful research themes by a growing ‘African developmental ICT’ research community, and to our knowledge this has not occurred to date. Second, it is not always obvious where ICT is able to make a useful enabling contribution to these developmental aims in a continent where there are so many competing demands for scarce funding, and where supporting infrastructure can be so thin.

In response, this paper seeks to be specific about the need for a focus on ‘developmental’ ICT – as opposed to ICT that happens to be deployed within the context of developing countries. By ‘developmental’ ICT, we mean the conception, development, implementation and use of ICT as an explicit vehicle for furthering developmental aims – where ICT functions both as enabling artefact and enabled set of social behaviours (Thompson 2008). The potential of ICT in this regard has been acknowledged by some policymakers, for example UNESCO (2005)’s view of ‘knowledge societies’ as an accelerator for development or the recent attention given to the \$100 laptop, but it has also attracted some scepticism about the extent to which ICT is able to deliver lasting developmental benefits (e.g. Ciborra 2003) – or, indeed, whether precious developmental funding should be spent on ICT initiatives at all (e.g. Wade 2002). In the current context of unprecedented commercial and philanthropic interest in the topic of ICT in developing countries, such critiques are important and deserve serious engagement by the ICT community, which has yet to acknowledge and discuss explicitly the implications of a clear distinction between ‘developmental ICT’ and ‘ICT in developing countries’.

This paper aims to address these perceived difficulties, and is organised into three further sections. First, we look at a high level at how developmental ICT research arguably requires a shift in emphasis from more ‘traditional’ IS research to date, and explain why we believe this shift in emphasis amounts to a need for a more strategic engagement with policymakers and other research disciplines than has occurred thus far. Second, we identify some specifically ‘African’ developmental themes where ICT is arguably able to make an enabling contribution, explain why this is the case, and look at the extent to which each theme has been addressed thus far within the literature, with a view to

establishing a broad, strategic framework for ‘developmental’ African ICT research. Finally, we conclude by highlighting briefly some of the implications of our findings for future research in this area.

The need for more ‘strategic’ research

Much IS literature to date has tended to focus along four dimensions: first, a concentration on an institutional, or inter-institutional, research frame; second, a focus on the design and particularly implementation of ‘point’ applications and ICT systems; third, a location of decision-making about the purpose and shape of ICT as it occurs in the marketplace, and fourth, an engagement primarily with other ICT researchers and practitioners.

In contrast, we argue that an IS literature that aims to pursue a ‘developmental’ agenda needs to broaden, first, from an institutional to a global research frame to encompass a myriad of actors and their interests; second, from a focus on ‘point’ design and implementation to a wider critique that includes broader institutional, regulatory, and political infrastructures; and third, from examining ICT initiatives from a market-driven perspective to an engagement in strategic, policy-level debate about the transformative potential of ICT within broader developmental agendas. Finally, a ‘developmental’ ICT agenda calls for a committed engagement with literature, researchers and practitioners across a range of disciplines, implying a shift in the way in which ICT research is planned and conducted. These shifts in research focus are summarised in Table 1.

‘Traditional’ IS focus	‘Developmental’ IS focus
Institutional	Global
‘Point’ design and implementation	Broader institutional, regulatory, and political infrastructures
Marketplace as locus of decisions about purpose and shape of ICT	Policy-level debate about transformative potential of ICT
Other ICT researchers and practitioners	Researchers and practitioners from other disciplines

Table 1: A broadening of research focus

In arguing for a broadening of research focus across these areas, we also suggest that there is a continuing need for a sharp focus on ‘point’ implementations of technology to assess important factors such as overall relevance and cultural sensitivity – indeed, we would expect this need to increase as ‘developmental’ ICT issues gain further acceptance and attract more interest within the IS community. However, we are arguing for a broadening of the research agenda to include explicit engagement with the specific aims

and implications of social and economic transformation, both areas that are relatively new to the IS research community.

International development organisations currently operate using strategies with which there is currently little or no engagement or critique from the ICT community. In seeking to engage with this and other research communities involved in development, our proposed shift amounts to a more ‘strategic’ approach to conducting ICT research. Such an approach demands an explicitly outward-looking focus on ways in which ‘developmental ICT’ initiatives may profitably be embedded within – or perhaps in some cases be excluded from - broader structural transformational initiatives. Such a shift requires a longer term research aim: a move from a typical post-implementation review, concluding perhaps once again that an IT project should have been more sensitive to the needs of its local users, towards a research agenda that dares to challenge those in adjacent disciplines, to critique, and to plan. In so doing, we believe that the development of a political economy of ‘global ICT’ and, within this, of ‘African ICT’, may constitute a professionally risky undertaking, since a cautiously vigilant, yet underlyingly constructive approach may at times be more susceptible to claims from radical development scholars of naïve technological optimism than a view that remains consistently critical. However, we believe the risk is worth taking since the potential gains from the broadened focus are high in terms of potential relevance to crucial African development debates.

In an attempt to think about some useful underlying themes for a political economy of African ICT, we first identified some key areas of current debate within the ‘development’ community, and selected four ‘strategic’ dimensions where ICT arguably has potential as a significant enabler for transformational development in Africa: public infrastructure; governance, accountability and civil society; entrepreneurialism and economic activity; and access to global markets and resources. We then examined three survey papers in the IS in developing countries literature: Walsham and Sahay (2006), Avgerou (2007) and Walsham et al (2007). We identified all the articles cited in these survey papers that had an explicit focus on ICT in Africa. We would emphasise that we did not intend our work to be a complete survey of the literature on ICT in Africa, but we believe that we have used a broadly representative sample of current work in the area.

The results from our analysis of the above papers is given in the Appendix. In summary, we were able to classify the papers under the four developmental dimensions, with papers being oriented, for example, to infrastructural areas such as health, civil society issues such as educational provision, entrepreneurial activity or access to global markets. However, it is clear that most of the papers did not contain any explicit discussion of the strategic developmental contribution of the ICT-based initiative or that such discussion was rather limited. Only 5 papers in the whole set made a substantial effort to address development in an explicit way and to discuss the ICT contribution related to this. We repeat that this is not an argument that the rest of the papers were of low value, since we believe that ‘point’ implementation studies are potentially of high worth. Rather, we are arguing that increased work on the strategic developmental dimensions is needed in addition to such ‘point’ studies.

The following section provides more detail on our strategic developmental dimensions by

describing each dimension in turn, and by using some early ‘pathfinder’ examples from the existing literature to illustrate a broad range of issues that we believe constitutes a substantial stream of potential future research in each case. Some of the literature examples are from the cited papers above but we also draw on other papers from the literature, including some with a non-African focus. In discussing the dimensions, it is important to note that we are aware of the extreme country-level variation within Africa and that this cannot be treated homogeneously: rather, our intention is to highlight the importance of ICT as a potential strategic enabler within this broad context, whilst acknowledging that the significance of our dimensions will vary across locations.

Four ‘strategic’ dimensions for ICT research in Africa

ICT as enabler for Public Infrastructure

Most African countries suffer from inadequate or dilapidated public infrastructure with some of the lowest levels of service provision and availability in the world, with the ratio of services per head of population often declining with increased population growth. Although ICT may have limited potential for improving, say, transport networks and utilities, there is growing evidence of ICT’s ability to play a significant enabling role in areas such as public health and communications – usually when planned and used as part of a broader, structurally integrated, set of developmental interventions. For example, Ngwenyama et al. (2006) argue that “complementary investments in ICT, health and education can significantly increase development” – underlying the need for future work on how ICT initiatives may be further embedded in cross-sector developmental planning.

In the case of public health, considerable work has been conducted by the Health Information Systems Programme (HISP) across several African countries in demonstrating the impact that ICT is able to achieve in enabling people at primary level to take greater control of their own health information – and to plan and execute better-targeted clinical interventions as a result. In their recent MISQ article, Braa et al. (2007) discuss their experience of using flexible standards in generating a unified health information infrastructure, using actor-network theory to explain how this is generated. In our view, this represents a good example of how concepts used within the IS literature can be applied usefully to the African developmental context.

Communications are another area to have received some attention within the literature, most notably in relation to the provision of telecentres to provide public access to long-distance communication and information services. In her recent, critical, discussion of the sustainability of telecentre projects in Kerala, India, Madon (2005a) notes that over 20 projects have been implemented in Africa in Ghana, Mozambique, Uganda, Benin, Tanzania, Zambia, Zimbabwe, and South Africa. However, Madon points to five critical issues that have affected the sustainability of the Kerala telecentre project: building corporate confidence, working with government, renewing grassroots campaigning, involving the legislative system, and ensuring the continued support of political champions.

We suggest that the above examples alone are a rich illustration of some of the questions for researchers investigating IS as an enabler for public infrastructure. If ICT is able to

contribute to the development of much-needed public infrastructure in Africa, to what extent does African ICT share the sustainability issues raised by Madon? How might it be possible to ensure that ICT infrastructural projects are integrated effectively within other structural developmental interventions? How might we draw upon existing concepts from within the IS literature, such as flexible, open standards, to better understand the way in which to build sustainable infrastructure within the context of African 'development'? And how can such ideas engage with mainstream developmental policy-making?

ICT as enabler for Governance, Accountability, and Civil Society

Often manifested in 'urban bias' (e.g. Lipton 1982) and patrimonial behaviour (e.g. Callaghy 1987), developing good governance and accountability within the African state has long been an issue for debate within African development. It continues to be a major focus for donors, as exemplified by the World Bank's 'Worldwide Governance Indicators' (World Bank 2007), in which the Bank claims a 'development dividend' whereby improvements in governance by one standard deviation result in long-term increases in income of three-fold, and a two-thirds decline in infant mortality. Here, 'development' can often be seen as opposing the interests of entrenched institutional actors who may profit from controlling access to national resources. For example, in the African telecommunications field, Wilson (2004) cites the entrenched interests of regulators, ministry officials, and telephone company managers 'against' those trying to achieve rapid diffusion of access to ICT infrastructure.

The pervasiveness of this 'anti-state' view makes Al-Jaghoub and Westrup's (2003) work on the role of the 'competition state' in driving 'ICT-led development' especially interesting. The authors show how, far from opposing the development of ICT infrastructure, the Jordanian state has succeeded in playing a pivotal role in assembling a mix of public and private partnerships, international agencies and multinational enterprises in the creation of a Jordanian ICT sector. Although Jordan's political and cultural background differs markedly from those of, say, countries in sub-Saharan Africa, these states' relative 'disconnection' from economic activity would suggest the usefulness of a networked approach to examining their ability to mobilise diverse actors to drive ICT-led development.

Furthermore, Thompson (2008) argues that increased participation by citizens in web-based, Web 2.0-style forms of interaction results over time in a corresponding growth in the culture of openness and increased transparency, where choice of information is arguably generating a "new economics of intellectual property" (Tapscott and Williams 2006). The recent impact of the leaked 2004 Kroll report into corruption in Kenya – published and available in perpetuity on the web – illustrates the power of ICT-based fora as a force for openness and political accountability. Taking a further Kenyan example, www.mzalendo.com (sub-titled 'Eye on Kenyan Parliament') illustrates the ability of ICT to support Kenyans' unprecedented ability to interact around and critique the operation of the state.

There are also encouraging signs that involvement in e-government initiatives can result in an improvement in state-society relations. For example, in her study of the

developmental impact of e-government initiatives in India, which she finds to be questionable, Madon (2005b) nonetheless points to an “increased sense of trust and reciprocity developing between citizens and the state...the government is seen for the first time as being capable of providing a reasonable level of service without corruption”. Given similar governance and accountability challenges within the context of many African countries, it would seem that there may be an opportunity for valuable research into the effect of e-governance initiatives as catalysts for improving trust between African states and their citizens.

Finally, as illustrated so clearly by Castells’ (1997) examples of the way in which ICT-enabled networks have fostered social movements such as Mexico’s Zapatistas, opportunities exist to look at ways in which social groups that feel excluded from the benefits of mainstream ‘development’ are able to use ICT to mobilise and co-ordinate their activities. In their study of Kenyan women’s participation in IT education programmes, Mbarika et al. (2007) note that “the majority of the women were motivated to attend the ICT programmes due to reasons related to gender equality”. In an example of the enabling potential of ICT in building educational infrastructure, Komen (2007) describes the efforts of Schoolnet Namibia, a ‘bottom-up’ organization committed to empowering children across Namibia through open source software, open content, and open access. Schoolnet Namibia’s profile has now grown to the extent that the Namibian government has begun to recognise the power of this model in its national policymaking. We believe that there is a significant opportunity for future research projects on examining ways in which disadvantaged or excluded social groups in Africa are able to make use of ICT to increase their profiles and further their own developmental aims.

It appears from the above examples that there is significant opportunity for further strategic thought about the ability of the ICT sector to catalyse greater state involvement in economic development, and to foster higher standards of accountability and openness. Similarly, greater openness and accountability are unlikely to materialise in the absence of increased demands for such improvements by a strengthening, more vocal civil society. To be sure, significant questions remain around the unique challenges of many African state-society relations – and around the extent to which ‘connected’ urban elites are able to use ICT to ‘drive’ greater accountability for the benefit of the ‘disconnected’ rural majority – but these are surely questions deserving of researchers’ urgent attention, rather than a platform for the wholesale dismissal of developmental ICT as a fad.

ICT as enabler for Entrepreneurialism and Economic Activity

Jagun et al (2007) highlight the significance of ‘informational challenges’ such as absence, uncertainty, and asymmetry in hindering Nigerian microentrepreneurs’ ability to assemble supply chains, keeping them slow, costly, and risky. As argued earlier, a fragmented, inadequate public infrastructure is a particular issue for most African countries and therefore the potential ability of ICT to overcome or bypass uneven social, economic or geographical topographies to generate economic opportunity across both formal and informal sectors should constitute an important area for African ICT research.

In the formal sector, there has been a relative lack of studies that examine ICT implementation and use in large organisations within the African context, and even less

that then go on to consider ICT's role as developmental catalyst within this context. Where such studies exist, they often seek instead to highlight the organisational, economic, social, political, and cultural factors that influence the implementation and use of ICT. For instance, Bada (2002) uses the example of an IT-driven change programme in a Nigerian bank to (rightly) highlight the need for greater work on understanding the local context into which global IT-based practices are being implemented, and Macome (2003) draws similar conclusions in an analysis of the implementation of IS in the Mozambican Electricity Company. However, although both authors touch upon the link between ICT and the effects of globalisation, neither deals with the issue in any systematic way.

More work appears to exist on ICT's potential as economic catalyst in the informal sector. For example, Thompson (2008) cites documented examples of entrepreneurial activity having been triggered by mobile technology in its ability to reduce transaction costs within cash-based societies, broaden trade networks and reduce the need to travel (Opoku-Mensah and Salih 2007). A survey (Donner 2005) of mobile phone users in Rwanda suggested that mobiles are allowing microentrepreneurs in developing countries to develop new business contacts on a peer-to-peer basis in a variety of ways. Most interestingly, Mbarika et al. (2007) describe Kenyan women's "highly optimistic" perceptions of ICT as a vehicle for achieving entry into the labour market – opening the way for further studies into ICT's differential effect on the fortunes of various stakeholder groups within the African context – and of the most appropriate way in which to plan for, and manage, favourable outcomes in each case.

The importance of mobile technology, in particular, in fostering economic opportunity is receiving increasing acknowledgement within the literature, as exemplified by Duncombe and Heeks' (2002) commitment to the underlying potential of shared telephone services for breaking the insularity experienced by rural entrepreneurs in Botswana. However, here, too, significant questions exist. For example, Jagun et al (2007) point out that whilst mobile technology has delivered some efficiencies and savings for microenterprise in Nigeria, there is often a continuing need for face-to-face interaction – and that mobile may even be opening up a 'competitive divide' between those with and those without access to telephony. There thus would appear to be a significant need for further research into the contextual implications of ICT as an enabler of competitive activity within African economies, that deepens our understanding of its potential economic benefits at the same time as our awareness of its limitations. How might IS researchers contribute to this discussion by drawing upon some of the existing work within the IS literature on power relations, and on the limitations of technology as a replacement for social interaction?

ICT as enabler for Access to Global Markets and Resources

The ability of technology-enabled network access to transform the lives of individuals around the globe – irrespective of location – was thoroughly described by Castells (1998), who examined the social and economic impact of such access in terms of inequality, polarisation, and social exclusion – as well as in terms of the considerable opportunities also presented by ICT for addressing these. Often focusing on the African context, Castells discusses a range of ways in which ICT-enabled access to global

markets and resources is able to improve the life chances of individuals and groups, from sidestepping intermediaries in order to gain more direct access to global markets, to making use of the internet to develop, spread, and gain global recognition for group identities and associated social movements.

In highlighting the ambiguous, double-edged nature of global networks as both transformational and constraining, Castells usefully illustrates the breadth of opportunity available to researchers interested in examining ways in which ICT-enabled access to global markets, resources – or even a global audience – is able to both positively and negatively affect quality of life. Within the African context, for example, Okunoye and Karsten (2003) point to the ways in which internet access has been changing the lives of researchers in sub-Saharan Africa – in the acquisition of knowledge (via the internet), knowledge transfer and sharing (principally via email), and in the ‘use’ of knowledge (the greater international presence that electronic publishing brought to their work). However, they also point to a series of issues and hindrances – relating chiefly to the African context – that need to be addressed within this sector.

We have already commented on Al-Jaghoub and Westrup’s (2003) work on access to global networks as a key part of Jordan’s approach to ICT-led development but their work is also notable for its emphasis on the economic benefits which arise from this access to global markets. In a related vein, Sayed and Westrup (2003) looked at how ERP systems supporting a group of high-technology companies in Egypt facilitated access to global markets and resources, thereby gaining increased economic benefits for Egyptian firms and supporting Egypt’s development goals.

ICT-enabled access to global markets and resources thus arguably offer significant breadth of economic and social opportunity for individuals and groups across a range of activities, including defining and mobilising social movements, improving traders’ market awareness and bargaining position, and accessing and publishing information and knowledge. However, Molla (2000) cautions about the “hype both in the academic and popular media about the shift to the global information economy”, pointing out Africa’s unique challenges in participating in global markets and resources – and this continues to be the case, with less than 4% of Africa’s population connected to the web, the majority of these being in Northern African countries and South Africa (Nixon 2007).

There would therefore appear to be a set of questions surrounding both the enablement of greater ‘global connectivity’ in Africa, and the ways in which such connectivity may practically be put to use across a variety of disciplines, and types of data exchange. In the case of the former, there must be ongoing questions about the relative priority of ICT-enabled connectivity as a developmental aim in places where many lack, say, clean drinking water and access to basic health services – as well as a need to encourage a continuing awareness that connectivity may result in losers as well as winners. In the case of the latter, however, we believe that the ongoing development and trialling of new, practical applications involving global connectivity within the African context constitutes one of the most exciting avenues for future research – including action research – in the field.

Conclusion: Towards a research agenda for African development

In our paper we have called for those of us undertaking ICT-related research within the context of 'African development', as opposed to just 'Africa', to consider broadening the subject, as well as the focus, of our work to include an explicit engagement with the transformatory aims of development. In addition to critiquing 'point' implementations and projects, we need to be willing to engage with and critique international and national development policies from an ICT perspective, as well as contributing to ICT policy within individual countries. In so doing, we will need to build a body of empirical evidence that explores the potential direct and indirect developmental benefits of ICT in Africa, and develops our understanding of how these can be enjoyed by the greatest number. We must also remain vigilant about overly optimistic claims for the developmental potential of ICT in Africa, and of naïve attempts to 'transfer in' ICT to African contexts regardless of cultural relevance or sustainability.

We will also need to identify and engage with other research communities, their literatures, and theoretical constructs, whilst asking how some of the valuable insights developed within the information systems literature may complement some of these perspectives. Finally, we will need to accept that 'development' is an analytically complex and politically problematic set of aims, and that active participation in its shaping and implementation amounts at times to a political statement in itself, requiring a willingness to occupy and defend a particular position. However difficult and complex ICT has proven to date to be in Africa, and however problematic the field of 'African development', we believe that the two fields are likely to become ever more intertwined, and deserve a committed body of research capable of acknowledging and illuminating the strategic relationship between the two.

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Appendix: Some Articles in the ICTs in Developing Countries Literature with an Explicit African Focus

Articles cited in Walsham and Sahay (2006):

Author(s) [and country of study]	Public Infra- structure	Governance, Accountability and Civil Society	Entre- preneurial and Economic Activity	Access To Global Markets and Resources	Explicit Discussion of Strategic Contribution to Development?
Bada (2002) [Nigeria]			Local bank's adaptation of ERP system	ERP systems as global resource	No, but some discussion of global-local dialectic
Braa and Hedberg (2002) [South Africa]	Health	Bottom-up empowerment of health workers			Yes – discusses contribution of HISP approach to South Africa's post-apartheid development policies
Mursu et al (2003) [Nigeria]			Software develop- ment		No, but some discussion of how Nigeria is different to developed countries
Okunoye and Karsten (2003) [Gambia and Nigeria]		Education		Access to global resources through the internet	Limited – some discussion of the importance of the education sector to development
Sayed and Westrup (2003) [Egypt]	National project for technological development		ERP systems supporting group of high- technology companies	ICTs facilitating access to global markets and resources	Yes – discusses links of ICTs with Egypt's development goals
Shoib and Jones (2003) [Egypt]					No – focussed on relative weaknesses of current IS research on Egypt
Thompson (2002) [South Africa]	Health				No – little discussion of contribution of health to development goals

Articles cited in Avgerou (2007):

Author(s) [and country of study]	Public Infra- structure	Governance, Accountability and Civil Society	Entre- preneurial and Economic Activity	Access To Global Markets and Resources	Explicit Discussion of Contribution to Development?
Al-Gahtani (2003) [Saudi Arabia]			Technology adoption by companies		No – except to imply that IT use is a good thing for Saudi Arabia
Al-Jaghoub and Westrup (2003) [Jordan]		Jordan’s efforts to become a competition state	Technology supporting export-led growth	Technology to provide access to global markets and resources	Yes – discusses Jordan’s development philosophy and the role of ICTs in this
Kenny (2000) [Africa in general]		Internet to help the rural poor			No – except to assert that internet access would be helpful to the development of the rural poor
Mbarika et al (2007) [Kenya]		ICTs to empower women			Yes – argues that women’s empowerment can be related to Sen’s concepts of development as freedom
Molla (2000) [Africa in general]	At a very general level		At a very general level		Limited –accepts that ICTs are a good thing for development without any serious questioning
Ngwenyama et al (2006) [Five West African countries]	Health	Education			Limited – derives causality from statistical correlations between ICT investments and those in health/education with HDI
Rose and Straub (1998) [Five Arab countries]			A very broad level of the TAM model		No – implicitly accepts that technology adoption is a good thing
Straub et al (2001) [Arab world]			A very broad level of whether particular ‘cultures’ affect technology acceptance		No – implicitly accepts that technology adoption is a good thing
Warschauer (2003) [Egypt]		Educational system			Yes to some extent – discusses the link between the digital divide and the broader complexity of socio-political realities
Wresch (1998) [Africa in general]		Educational system, role of the media etc.		Brief discussion of access issues	Limited – argues that more local films, books etc would be a good thing
Zakaria et al (2003)			A very broad level through		No – implicitly accepts that technology adoption is a good

[Arab world]			hypotheses as to how culture affects technology adoption		thing
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Articles cited in Walsham, Robey and Sahay (2007):

Author(s) [and country of study]	Public Infrastructure	Governance, Accountability and Civil Society	Entrepreneurial and Economic Activity	Access To Global Markets and Resources	Explicit Discussion of Contribution to Development?
Korpela et al (2000) [Nigeria]	Health	To some extent – by trying to mould an approach to system design which is congruent with the local socio-political context			Limited – largely implies that ICTs are a good thing
Macome (2003) [Mozambique]	Electricity company				No – discusses implementation issues but doesn't really touch on development as such