Emerging Discourses on IT Innovation Perspectives for Development in Information Systems Within Emerging Economies; Case of Kenya

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Abstract: - Emergence on ICT innovation for development (ICTI4D) involves assumptions on the nature of ICT innovation and the way such innovation contributes to development particularly in emerging economies. This paper will review the multidisciplinary literature on ICTI4D and identify two perspectives regarding the nature of the ICT innovation process in emerging economies, case of Kenya in particular - as transfer and diffusion and as socially embedded action - and two perspectives on the development transformation towards which ICT is understood to contribute - progressive transformation and disruptive transformation. The four discourses formed is elaborated by combining the perspectives on the nature of IS innovation and on the development transformation. A conceptual framework will narrow down ICTI4D discourse. From the framework we then ague on the basis that despite its remarkable theoretical capabilities to study technology innovation in relation to socio-economic context, the four discourse remains weak in forming convincing arguments on ICT-enabled socio-economic development within emerging economies in particular underpinning the case of Kenya's emerging economies.

Key Words: — ***Disruptive transformation, Progressive transformation, Socially embedded action.***

I. INTRODUCTION

There is a fairly large literature on Information Systems in Developing Countries (ISDC) research as opines Avgerou (2008, pp 133-146). Nurtured within the field of Information Systems, ISDC research tends to largely focus on the development and implementation of information technology applications as well as with the organizational changes that are associated with them. Nonetheless ISDC research has extended the IS research domain to consider the broader socio-economic context of the organizations co-hosting new technologies. The object of study of ISDC research as 'IS innovation' to convey the notion of novelty of experiences of IS implementation and the associated changes within the hosting organization and beyond it.

Manuscript revised May 03, 2022; accepted May 04, 2022.
Date of publication May 06, 2022.

This paper available online at www.ijprse.com

ISSN (Online): 2582-7898; SJIF: 5.59

The rationale for using the term innovation is, even if the technologies implemented in an IS project are already featured commonly elsewhere and through a wider spectrum, the local experience of technology implementation and socio-organizational change constitutes an innovation for the organization concerned and may well constitute innovation for its socio-economic context. Seeing IS implementation as innovation sensitizes the researcher to consider the effort of technology and organizational change and the value of such change in relation to an organization's context. ICTI4D research is premised on the potential of ICT to contribute to the improvement of socioeconomic conditions in developing countries (Sahay 2001; Walsham et al. 2007). It aspires to subscribe to the realization of perceptions of world's desirable orders, such as Sen's theory of capabilities (Madon 2004) or the United Nations' Millennium Goal (Gilhooly 2005) vision of eradicating poverty. It is further guided by conceptual models of transformations happening in the contemporary world that necessitate ICT infrastructures, such as Castells' ideas of society and economy as networks (Braa et al. 2004).

But beyond these very general premises and aspirations, every ISDC study makes also assumptions about the way IS innovation happens in the context of developing countries and about the notion and process of 'development' towards which IS innovation is intended to contribute.

The existence of alternative assumptions and theoretical perspectives regarding IS innovation are a feature of the epistemological state of IS research in general, and has been extensively discussed in the IS literature (Hirschheim and Klein 1989; Orlikowski and Baroudi 1991; Robey and Boudreau 1999). To some, this state of diversity of research questions, theoretical foundations and research method is a weakness that needs to be corrected with more strict 'disciplinary' mechanisms (Banville and Landry 1992; Benbasat and Weber 1996; Benbasat and Zmud 2003). But others have argued that that plurality in IS research stems from the nature of IS innovation as a social endeavour, and reflects deeper epistemological perspectives within the social sciences. Rather than seeking to eliminate alternative perspectives, IS research can strengthen its contributions by making explicit their underlying conceptual and theoretical differences (Hirschheim and Klein 1989; Robey 1996). We seek to explore the different underlying perspectives regarding IS innovation within the broader socio-economic context of emerging economies especially within the Kenyan context.

Development is a contested notion which has been subject to a long theoretical debate. Moreover, development policy and action are entangled with the conflicting interests and power relations in the contemporary global and national politics. The international agencies' policies for economic growth and institutional reform are overwhelmingly contested in emerging economies. Most ISDC studies avoid engaging with controversies on development and tend not to discuss what constitutes development. However, some ISDC articles done addressed the question of development more explicitly. Given for instance, Thompson (2004) drew from Escobar's Foucauldian critiques of the discourse on development and voiced suspicion about the development policies IS innovation interventions are intended to support as opines Thompson (2004). Majority of some authors have taken a critical stance to the currently prevailing development ideology that drive the discourse on digital divide and justifies IS innovation in terms of creating a country's competitiveness capabilities in a global free market (Wade 2004; Warschauer 2003). Others pointed out the ongoing controversies about the validity of this theoretical position and suspicions on the motives of the agencies that promote them (Avgerou 2003b; Ciborra 2005; Heeks and Kenny 2002; Westrup and Al-Jaghoub:2012). The combination of such assumptions regarding the nature and rationale of IS innovation effort and development as the pinnacle factor for IS innovation gives rise to different discourses in ISDC research. The use of the term 'discourses' refers to research approaches stemming from these assumptions on the fundamental nature and consequences of IS innovation. 'Discourse' unlike approach (too vague a term) indicates more specifically the research language of concepts, theories, and methods, through which researchers form the object of a research study and construct arguments about it.

The two perspectives regarding the nature of the IS innovation process: as transfer and diffusion and as socially embedded action; are presented here as we then draw relevant examples from the literature on IS implementation and IS and culture to demonstrate them. We make a distinction between two perspectives on the nature of development transformation towards which ICT is understood to contribute: progressive transformation and disruptive transformation. We draw examples from various research themes and, more specifically, from the literature on tele-hubs or tele-kiosks within emerging economies. We then discuss the four discourses formed by combining the perspectives on the nature of IS innovation process and on the nature of development transformation process, and demonstrate them with examples from the literature on IT sectors in these developing countries. Finally, in the conclusions, we will argue for the need to develop theoretical capabilities for studying IS innovation in relation to socioeconomic contexts and to increase awareness, ground application and use of the four discourses on ICTI4D for emerging economies.

II. LITERATURE REVIEW

ICT innovation for development in emerging economies (ICTI4DEE) has been shaped with awareness of the relentless ICT and organizational innovation taking place in advanced economies of the world - primarily North America and Europe - and of the increasing socio-economic interconnectedness of all countries and regions through globalization. Thus, a common assumption in ICTI4DEE research is that developing countries are in disadvantage in relation to the ICT innovation experiences in the context of origin of new technologies. As such it has culminated in the notion of 'digital divide' signifying another form of inequality. A great deal of research focused on the significance of this

problem and sought to monitor progress in reducing it (Kenny 2000; Mbarika et al. 2003; Wresch 1998). Most ICT4D research, though, tends to focus on the experiences and consequences of ICT's development and use, rather than the limitations of technical resources that inhibit it. Such research also tends to make the presumption that technological and institutional trends are set elsewhere, and available ICT artefacts by and large as business models deemed necessary for their use may not be in tandem with emerging economies' needs. Thus, difficulties faced in following trends and standards of ICT-enabled globalization and in practicing ICT innovation effectively feature frequently in research questions and findings of ICT4D research (Heeks 2002).

Framed in juxtaposition to innovation originating elsewhere, research on ICT in developing countries addresses distinctions of context. The context where a new technology artefact and business model first took shape (usually in an advanced economy) may be different from the context where this combined artefact and model are implemented as part of IS innovation practice in a developing country. Furthermore, the socio-organizational settings of ICT development and usage within sectors, countries, or regions may differ substantially from each other – for example e-government is practiced differently and with different results in countries with different public administrative sectors. Two different orientations towards addressing issues of context are discernible in the universalistic and situated research traditions of IS research and influenced ICTI4DEE research (Avgerou and Madon 2004; Dourish 2004).

Universalistic perspectives elaborate on the value of ICT and information and on the processes of IS innovation through which such value can be realized in terms of general techno-economic reasoning, independently from the particular circumstances of the social actors involved. For instance, they look for 'best practice', or for the most suitable new organizational form for the information age (Fulk and DeSanctis 1999; Scott Morton 1991). They often acknowledge contextual contingencies, but assume an overriding rationality that determines universal goals of ICT innovation and a single logic of action towards their satisfaction (Porter and Millar 1984). Conversely, situated perspectives consider IS innovation as enacted by social actors and tend to place emphasis on meaning making and practice within the immediate setting of the innovating organization (Orlikowski et al. 1996; Suchman 1994).

The universalistic and situated perspectives are discernible in two different ways of addressing issues of context in ICT in developing countries research, either in terms of transfer and diffusion processes or in terms of socially embedded processes.

2.1 Transfer and diffusion

Transfer and diffusion perspective considers ICT innovation in emerging economies as a process of diffusion of knowledge, which is transferred from advanced economies and adapted to the conditions of emerging economies. It assumes that the material and or cognitive entities that comprise IS technologies and associated practices of organizing are adequately independent from the social circumstances that give rise to them to be transferable, more or less intact, into any other society. Subject to suitable adaptation, these entities can make a desirable developmental impact. Such research, therefore, traces the particular factors that capture the differences of the recipient country and the organization that are likely to affect the process of technology development and use - such as economic conditions, technology competences, people's attitudes to IT, and institutionalized work habits. In studies of IS development and implementation, authors following the transfer and diffusion approach endeavor to show the relevance of general IS research knowledge and good practice models (methods, analytical approaches, or theories) in particular developing countries or regions and to work out adaptations appropriate for them. A series of publications present studies seeking to transfer and adapt systems development methodologies to accommodate analyses of the socio-organizational conditions of developing countries (Bell and Wood-Harper 1990; Korpela 1996; Korpela et al. 2000; Mursu et al. 2003). Such studies enrich IS implementation knowledge and professional practice by working out modifications to accommodate various local circumstances. They avoid a contextual universalist 'best practice' view and adopt a notion of 'appropriate', context specific practice (Avgerou and Land 1992; Bada 2002).

They challenge the feasibility of 'transferring' generic technical know-how into emerging economies sectors with the expectation of the same organizational practices and outcomes as in their context of origin (Avgerou 2010). Yet, they retain the general assumptions on the validity of purpose of the attempted innovation, for example to improve efficiency or competitiveness, as well as the validity of the underlying rationality of the transferred methods in their new context of practice.

2.2 Social embeddedness

The social embeddedness perspective takes the view that the development and use of ICT artefacts in developing countries concerns the construction of new techno-organizational arrangements in the local context of emerging economies. It focuses attention on the embeddedness of ICT innovation in the social context of various firms settings. The socially embedded innovation research approach finds the assumption of the transfer and diffusion perspective about the nature of information systems oversimplifying and misleading. It has developed elaborate ontologies of IS innovation as socially constructed entities. The focal point of such research is the process of innovation in situ. It traces the cognitive, emotional, and political capacities that individuals nurtured in their local social institutions bring to bear on the unfolding of innovation efforts. Through this approach the socially embedded innovation discourse sheds light on what is locally meaningful, desirable, or controversial, and therefore how technology innovation and organizational change emerge (or are retarded) amidst the local social dynamics.

Studies of IS implementation that follow the social embeddedness approach see the purpose of ICT innovation as arising from local problematizations and its course as being shaped by the way local players make sense of it and accommodate it in their lives (Avgerou 2012). They are theoretically grounded in social theory, such as Actor Network Theory, structuration theory, organizational institutionalism, which provides insights and terminologies to address conceptual relationships such as technology/society, agency/structure, technical reasoning/institutional dynamics. The main objective of such studies has been the development of theoretical capacity for addressing questions concerning the way specific categories of technologies and social actors' clusters are formed, shape each other, and progress to particular socio-economic outcomes. IS in developing countries studies that follow the social embeddedness approach tends to broaden the research perspective beyond the particular circumstances of work within an organization.

Early efforts to account for ICT innovation in relation to its context built on Pettigrew's contextualist theory, which views particular instances of organizational interventions as processes unfolding through time in relation to layers of context: typically, the organizational setting and its national environment (Pettigrew 1985; Walsham 1993). While Pettigrew's contextualist approach continues to be followed in IS in developing countries studies (Braa et al. 2007), several other theoretical approaches have been introduced to explore ICT innovation in the emerging economies context, including neo-institutionalist and social constructionist analyses (Avgerou 2001; Miscione 2007; Silva 2007). Much effort has been exerted to a variety of complementary socio-theoretical approaches – structuration, ANT, Castells networks of action model, complexity theory. Rather than developing a best practice or contingency model for the healthcare context of developing countries, they have aimed to develop a conceptual analytical capacity to guide context-specific sense making and practice in countries with different health care systems and practices. They have followed this approach to study a range of issues, including standards that are sensitive to the local context (Braa et al. 2007).

Transfer and diffusion and social embeddedness perspectives in on IS and firms' culture.

One of issues that is often discussed in ICT4D studies is the role of culture in ICT innovation. The transfer and diffusion approach frames the relationship of ICT and culture in terms of transferring ICT applications into a non-western national culture, which, more often than not, is seen as posing obstacles to innovation and as being a source of resistance (Straub et al. 2001). Hofstede's model of national culture variables and cultural difference is frequently used to analyse conflicts between values embedded into and behaviours required by ICT and the national culture of developing countries (Leidner and Kayworth 2006). Such studies have been criticised as oversimplifying cultural difference (Myers and Tan 2002); they 'sweep the subtleties of cultural difference under the universal carpet', as Walsham opines in his extensive discussion of examples of IS innovation and culture research in developing countries (Walsham 2001). In contrast, research taking the socially embedded and transformative perspective has highlighted distinctive features of historically formed collective behaviour that require attention when designing appropriate ICT systems, or when organizing the innovation process, such as attitude to hierarchy, arranging action in time, sense of space and geography (Rohitratana 2000; Sahay 1998; Zakaria et al. 2003).

Such research draws attention to cross-cultural interactions. In effect, socially embedded studies avoid the juxtaposition of IS innovation that is assumed to be inscribed with western culture with the emerging economies culture (assumed to be bent to accommodate it) (Walsham 2002). Particularly promising is one research that suggests a concept of culture which is dynamic and emergent, 'constantly being maintained and changing', an ongoing accomplishment (Westrup et al. 2003). Such research transcends the ICT/culture fit or conflict. Neither

ICT nor culture are taken to be uni-dimensional determinants of values and behaviours. Information systems, seen as hybrid networks of artefacts, people, and institutions, are subject to negotiation and local shaping. Cultural influence, seen as a historically formed disposition for a particular behaviour, may stem from the innovating organization, its national or regional environment, or the social class of individual actors. And rather than focusing on IS innovation as fitting in or conflicting with the culture of its social context, of particular interest is the mutual re-constitution of IS innovation and the cultures that influence it.

2.3 The question of Adoption of ICTI4DEE

ICT4D research is based on the belief that ICT has, potentially, the capacity to contribute towards the improvement of various aspects of life, from alleviating poverty to strengthening the democratic space. But vividly noted is that not all IS research in developing countries engages explicitly with questions of 'development' as action to transform the socioeconomic conditions. Our concern is in the adoption of IS for and development as a purposeful and contested endeavor. Therefore, we examine that part of the literature that goes beyond a declaration of an assumption that ICT may serve good causes – e.g. the elimination of poverty – and at least implicitly takes a position regarding the socio-economic transformation process through which ICT will deliver its potential benefit. Such transformative ICT4D research often focuses on specific developmental aims, such as enhancement of livelihoods in disadvantaged economic regions (Duncombe and Heeks 2002), or improvement in the quality of government services (Krishna and Walsham 2005), and seeks to understand the effort required for ICT development and concomitant organizational change to take place successfully and to deliver expected benefits. Sometimes, though, ICT4D research, confronted with the complex and highly political challenges of development endeavours, takes a critical stance to the role of ICT and development. We distinguish two perspectives of ICT-enabled development.

The progressive perspective considers ICT as an enabler of transformations in multiple domains of human activities. ICT enabled developmental transformations are assumed to be achieved within the existing international and local social order. The disruptive perspective is premised on the highly political and controversial nature of development, both as a concept and as an area of policy for international and local action. It reveals conflicts of interest and struggles of power as a necessary part of ICT innovation in emerging economies especially among the developing countries a case of Kenya.

2.4 Progressive transformation

The progressive transformation perspective in ICT4D reflects a widespread understanding of ICT as an instrument for economic and social gains that has been promoted since the mid-1990s by major international development agencies. (World Bank 2019). Such forms a good example of the association international organizations make between ICTI4DEE. These reports from these agencies seek to present a clear association between technology and desirable development effects, giving special attention to IT and IS–particularly the Internet, and emerging technologies such as Big data analytics on IoT, block chain technologies as well as AI. It is acknowledged that ICT needs to be accompanied by organizational restructuring to deliver productivity gains (Dedrick et al. 2003; Draca et al. 2007). Moreover, development requires effective e-government services which is considered to be an important tool for achieving efficiency,efficacy transparency and responsiveness. International development agencies have emphasized also the potential of ICT to improve the performance of state organizations, the delivery of health and education services, as well as democratic participation (United Nations Development Programme 2001). Some ICT4D articles have sought to corroborate their research questions on the economic and social significance of ICT for development (Mbarika et al. 2007; Ngwenyama et al. 2006), addressing concerns of sceptics who doubt the appropriateness of ICT for poor economies and point out their pressing necessity to provide for the basic life needs of a large part of their population, to alleviate extreme poverty, and to fight endemic diseases and illiteracy.

But on the whole such ICT4D research in the progressive transformation perspective tends to accept without testing the assumption that ICT potentially contributes to economic growth and to investigate the features of the ICT-based economy in particular countries or regions (Molla 2000) or the way ICT contributes to the competitiveness of organizations or regions (Goonatilake et al. 2000; Jarvenpaa and Leidner 1998; La Rovere 1996; La Rovere and Pereira 2000; Munkvold and Tundui 2005). Some research from the progressive transformation perspective has elaborated on the conditions under which ICT mediated business models and practices, which are considered necessary for participating in the global economy are diffused or the conditions under which IT-enabled niche industries are fostered (Davis et al. 2002).

The progressive transformation perspective is discernible also in research studying IS innovation in non-commercial organizations, such as in the development of national health data infrastructures (Braa et al. 2007). The fundamental assumption is that IS innovation in existing institutions responsible for the provision of social services can empower them to improve their services and work conditions (Puri 2007). ICT enabled improvements can be achieved without challenging the political economy of a country's social welfare provision.

2.5 Disruptive transformation

The disruptive transformation perspective considers development, including ICT-enabled development, as a contested endeavour or as involving action with unequal effects on different categories of population, and thus is laden with pre-existing conflict. Research taking this perspective often expresses doubts about the effectiveness and even the intentions of international or national policies regarding ICT and development. At the international level, analyses often manifest suspicion of the developmental intentions of the so-called the Big Five. At the local level of the developing countries analysts often see the established social order as harbouring inequalities of wealth and power - for example in relation to castes, gender, or ethnic origin – and point out that ICT-enabled interventions have varying effects on categories of citizens (Kanungo 2003). Research done on disruptive transformation perspective reveals hidden intentions and power dynamics which maintain or worsen current unevenness of wealth and opportunities for fulfilled lives among countries and categories of people. Thus critically revealing a logic for promoting the use of ICTs in developing countries that originates in the interests of the world powerful rather than the concerns for development through the lens of disruptive innovation.

2.6 Progressive vs disruptive transformation perspectives on tele-hubkiosks.

The difference between these two perspectives is manifested in the research on tele-hubkiosks or simply put i-hubs, most of which acknowledges and discusses developmental aims. The rationale for the creation of tele-hubkiosks is that countries or regions which do not have access to internet-based services are 'excluded' not only from global economic opportunities but also from modern society's information channels for education, health, and democratic participation. Poverty in emerging economy areas, particularly the rural regions, prohibits the diffusion of ICT and telecommunication connectivity to any extent comparable to that of advanced economies. A solution appeared to be the development of community information services, often called telecentres or tele-hubkiosks, equipped with IT infrastructure such as computers, internet connection, as well as fax machines. Although tele-hubkiosks services vary, most of them run software applications of local interest, such as providing information on health, agricultural product prices, educational material or the issuing of government services. From the lens of early research, it has presented promising initiatives, highlighting the perceived potential of local empowerment through information and communication. Many authors that heralded the developmental opportunities of tele-kiosks gave examples of possibilities of overcoming extreme poverty or bureaucratic obstacles, of participating in public sector decisions and actions, and of overcoming corruption (Bailur 2007). Later, research indicated a more nuanced picture of the developmental contribution of tele-kiosks, which includes some impressive cases of economic gain and social empowerment, but widespread failure and closure of these so called tele-kiosks, and increasing frustration among key actors such as the entrepreneurs who owned them, users/customers, and donors (Bailur 2007; Beilur 2007; Best and Kumar 2008; Madon et al. 2007; Parkinson and Lauzon 2008).

Of keen interest to the discussion in this paper is the assumptions about the way tele-hubkiosks are expected to contribute their developmental promise. Much of the research on tele-hubkiosks assumes that they are introduced in the existing socioeconomic structures and practices of disadvantaged communities and can have a positive impact on lessening the gap between them and the advanced industrialised societies. A common expectation in the tele-hubkiosks initiatives by many NGOs and governments, even in very poor communities, has been that, after investing some seed money, tele-hubkiosks would form viable enterprises, able to cover the costs of their operations and to sustain a profitable business for local entrepreneurs (Harris et al. 2003). Consequently, research on tele-hubskiosks attempts to fit and adapt the economic rationality of profitable business, even though, as research shows, there is not much potential for profit making from tele-hubskiosks 'customers' who live in extreme poverty and most of whom have little appreciation of the benefits they may gain from using such ICT services (Madon et al. 2007). Some research which attempted to explain why so often tele-kiosks prove unsustainable leans towards a disruptive transformation perspective and raises fundamental questions about the effectiveness of recommended mechanisms for development,

such as public/private partnership mechanism of governance for development through i-hubs centres (Madon 2005).

2.7 Conceptual Framework on the Four discourses on IS innovation and development.

The combination of the two perspectives regarding the nature of the ICT innovation process and the nature of the development transformation process give rise to distinctive discourses about ICT and development, see Figure 1.

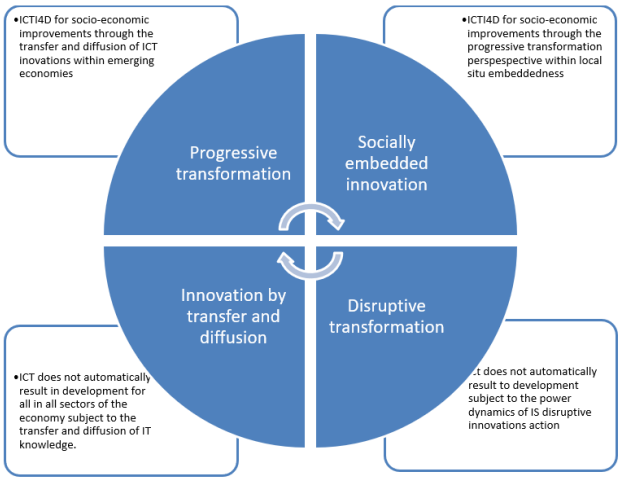

Fig.1. Conceptual Framework on the Four discourses on IS innovation and development

It is much easier to distinguish between the transfer and diffusion from the social embeddedness perspective and more difficult to determine perspectives regarding development. This is because ICT4D research rarely adequately defines and discusses development perspectives and rarely draws from socio-economic development theory in its analysis. Moreover, quite frequently authors mix progressive transformation and disruptive transformation perspectives. For example, they may adopt the progressive transformation view of ICT and development at the global context by grounding their analysis on publications of indicator tables and policies of international agencies that follow neoclassical economic reasoning, and they may include a disruptive transformation view in their arguments that challenge existing power orders in domestic efforts of harnessing ICT4D (Brown and Brown 2009).

ICTI4D for socio-economic improvements through the transfer and diffusion of ICT innovations within emerging economies.

Differences of perspective on the development process at different levels of context may indicate either complementarities or inconsistencies in the argumentation. From the conceptual framework deduced ICT4D research can improve its contributions if emerging economies as the case of Kenya can extend the theoretical grounding to crafting IS policies and implementing them categorically as socio-economic improvements through the transfer and diffusion of ICT within the requisite economic sectors. This discourse is formed by intertwining the transfer and diffusion perspective of IS innovation with the progressive transformation perspective of development. It tends to take the form of techno-economic argumentation, presenting the adoption of ICT-based practices pioneered in advanced economies as a necessity for improving life conditions in emerging economies. A great deal of emphasis is given to efficiency gains resulting from ICT4D.

The discourse is based on the cliché that emerging economies should adopt the technologies which developed economies countries have achieved prosperity and improvements in health, education, political participation to be at par. It is clear that existing institutional and firms' conditions in most emerging economies are not adequate to support such ideologies of grounding the theoretical perspectives in IS to is grounding application within these emerging sectors as such adaptation and adoption is needed (Bada 2002; Struab et al. 2001). It should be noted that one size of ICT discourse perspectives models does not fit all, but the same techno-organizational logic of efficiency and competitiveness needs to be adopted by all, and emerging economies should bend to implement these technologies wholesomely.

2.8 ICTI4D for socio-economic improvements through the progressive transformation perspective within the local situ embeddedness.

This discourse is formed by combining the social embeddedness perspective of ICT innovation and organizational change with the progressive transformation perspective of development. It assumes the capacity of ICT to contribute towards improving life conditions, but sees the form and processes of improvements as primarily locally worked out in accordance to historically shaped meanings and power relations. Its core argument is that socio-economic change should make sense to the local people, so that they feel comfortable with the processes of change. There may be obstacles in the harnessing of the developmental potential, stemming from historically developed social orders, such as overcentralised public administration and authoritarian hierarchies, but the belief expressed in this discourse is that these can be addressed with empowering democratic ICT policies and appropriate professional practices, such as user

participation (Braa et al. 2004; Puri 2007; Sahay and Walsham 2005). This discourse acknowledges influences from global actors. It is cautious about, but not confrontational with prevailing development ideologies and policies of international organizations. It often has a pragmatic character: technologies and methods transferred from technologically advanced societies do not work.

Local improvisations are necessary to close the gap between theory and actual emerging economies conditions. Improvisations in systems development to avoid failure seen as caused by the inappropriateness of general IS design methods (Heeks 2002). ICT does not necessarily result in development for all: the transfer and diffusion of ICT leads to uneven development. This discourse combines the transfer and diffusion perspective of ICT innovation with the disruptive transformation perspective of development. Its argumentation accepts the logic of ICT as a force for socio-economic change, but finds that it entails risks of reinforcing domination and inequality. Thus, it uncovers distorting effects of ICT and institutional transfer and diffusion and reveals interests in preserving historically formed privileges (Ciborra 2005; Wade 2004). It challenges the evidence on the generally seen as beneficial effects of development policies such as globalization, liberalization, ICT and productivity gains, and sometimes doubts the motives of powerful actors, such as the international development agencies, national policy makers, and corporate managers. ICT does not necessarily result in development for all: it is subject to the power dynamics of IS innovation action. This discourse tends to intertwine the social embeddedness perspective of ICT and organizational change with the disruptive transformation perspective of development. It is a critical discourse in the sociological sense of critical theory, and is concerned with particular biases of power and inequalities in specific socio-economic conditions of a country or a community. The starting position is the local context, with its historically formed patterns of privileges, and may extend its analysis to the biased influences exerted from the power-laden inscriptions carried by particular technologies or institutional reform models and policies. As as matter of fact the potential use of ICT by Kenyan craftswomen or and the juakali enteprenuers, a research points out various structural challenges that inhibit their capacity to trade in global markets (Hassanin 2008). In effect, the socially embedded and disruptive discourse deconstructs the dominant view about ICT and development, juxtaposing it to the local interests, imaginaries, and realization potential of a better life. Its critiques question not only the effectiveness of ICT and development to lead to life improvements, but also the desirability of their projected visions (Stahl 2008; Thompson 2014).

III. METHODOLOGY

(Process and Criteria for selecting reviewed articles)

In carrying out this study, we followed the principles outlined in inductive categorization method (Dube & Pare, 2003). More specifically, we did the following: (1) carefully selected relevant journals, and those that are pertinent to the context of our study, (2) identified the articles published in those journals which are relevant to our study by using carefully selected keywords, (3) categorized the selected (and short-listed) articles by drawing on different theoretically grounded categorization schemes, (4) assessed (and calculated) the number of articles in different categories and sub-categories, (5) analysed the trends and identified gaps.

We had to select journals based on their reputation in the Information Technology discipline and also based on their relevance to our study topic. To decide on these journals, we reviewed 15 internationally recognized peer-reviewed journals owing to their topical relevance to the study that is in ICT4D innovations. Our assessment of journal articles thus allowed us to ensure that most high-quality papers on the topic were considered, and thus, each journal contained articles on ICT4D with discourses on IS innovations perspectives.

IV. FINDINGS

The four discourses in ICTI4DEE the case of the Kenyan IT/S industry

A prominent stream of ICT4D literature concerns the software industries that have emerged in various emerging economies and achieved the ability to compete in the global market, thus forming a substantial part of the ‘global outsourcing’ or ‘offshore outsourcing’ phenomenon (Carmel and Agarwal 2002). Kenya is the most successful country in this digital business space of innovativeness, and the efforts of its IT firms have been studied within the ICT4D subfield since its early days (Bitange Ndemo et al.,2019).

Most research on developing countries’ IT firms view ICT and development as a matter of socio-economic improvements through the transfer and diffusion of ICT capabilities and required economic sectors. They tend to see the developmental potential of these industries in their capability to compete in global markets and thus to export services and products digitally. Their achievement lies in being able to master digital

techniques and technologically based business models that allow them to compete globally. Many such studies examined the factors that account for their success within the global market of services and products of IS innovation (Bitange Ndemo,2019). Success factors include technology and project management skills, IT technical skills, costs, telecommunications infrastructures, Government ICT policies such as copyright legislation and critically the emergent digital technologies that is for instance Block chain, Big data analytics which may seem to catapult disruptive innovations in this space.There are also ongoing studies that assess and compare the relative advantages among emerging economies competing for the lucrative markets of industrialized countries (Carmel 2003).

Some research has focused on the micro-societal processes that constitute the practices of global outsourcing services, highlighted the difficulties of cross-cultural collaboration and the surfacing of multiple political conflicts (Barrett and Walsham 1995; Nicholson and Sahay 2001) and emphasized the intrinsically tacit nature of the knowledge of software developers (Nicholson and Sahay 2004; Sahay et al. 2003). Nevertheless, the discourse of such research does not challenge an implicit progressive transformation view of ICT as an enabler of economic development by participating competitively in the global free market. Both these discourses – stemming from the transfer of skills and the socially embedded practice perspectives - on the software industry in emerging economies tend to focus on achieving capacity for export of IT products and services, taking such exports to be an important source of income and of national prestige. Some comparative analyses of the software industries of major emerging economies suggest that there may be trade-offs between efforts to foster an export-oriented IT industry and IS innovation in domestic organizations (Carmel 2003b; Commander 2005).

V. Discussions

ICTD research has produced a substantial body of knowledge on the efforts made in developing countries to exploit the potential of the never-ending advances of ICT. My review suggests that our research in this area faces two immediate theoretical challenges. The first is related with the recognition of the significance of contextual contingency that both the diffusion and the social embeddedness ICTD discourses share. ICTD studies need to develop theory capable of addressing the interrelationship of ICT innovation with its cognitive and socio-political context. Established categories such as nations, industries, and formal organizations that are taken as 'context' in most ICTD research, may not, on their own, provide appropriate framing for understanding the ideas and actions that constitute incidents of ICT innovation. Assumptions of stereotypical behaviour associated with 'local culture' are unlikely to explain adequately encounters with new technologies and interactions among the multiple actors that are involved in ICT projects and their consequences.

Theory is needed to identify what is relevant context for each case of ICT innovation, and how it matters. The social embeddedness perspective is in a better position than the transfer and development perspective to do so. Its institutionalist epistemology (Berger and Luckmann 2007) is fundamentally contextualist. It brings into research attention issues related with meaning - meaning of the developmental capacity of ICT within the context of an innovation effort - and associates people's actions with the frameworks of interpretation sustained by the cultures of their context. As it has been developed in close association with contemporary social theory, the social embeddedness perspective and its sociotechnical concepts address more effectively the dynamic interplay between the artefacts/cognitive constructs of innovation and the multiple and changing social dimensions in developing countries. Yet, studies that follow concepts and theories from the socially embedded perspective have not so far produced a coherent theoretical basis to guide contextualist research in developing countries. More systematic theorizing efforts are needed to understand how the socio-economic context enables or constrains actions of ICT innovation that contributes life improvements in emerging economies, and to test the actual implementations capacity of such theoretical discourses in ICTIEE.

The second theoretical challenge is the strengthening of the field's capacity to associate ICT innovation with socio-economic development (Heeks 2006; Thompson 2008). ICT4D studies that concern the role of ICT in the struggle for the transformation of the life conditions of the billions of poor – with implications for the lives of the affluent – inevitably implicate political ideologies of development, as well as policies and actions of development institutions (such as the World Bank, the aid agencies of 'Western' countries, international NGOs). Analyses of the ICT innovation context include controversial government policies, such as liberalization of telecommunications for extending connectivity, or the filtering of internet information by national

governments. Without due diligent grounding on theory regarding development processes, studies of the developmental potential of ICT lack analytical bearings and rely on common sense or popular assumptions of what are desirable developmental effects and how they can be achieved.

Critical discourses on ICT and development run the risk of having a polemic or moralizing character, unworthy of scholarly attention and unconvincing in policy circles. ICT4D research has a great deal to gain from engaging with current theoretical and policy debates on development in economics and the social sciences, in a similar way that IS research gained strength in its argumentation about the nature of IS innovation from studying theories of technology in sociology. We should work towards developing a theoretical basis for the analysis of the political economy and the sociology of ICT-enabled development. We need studies of the political actors and institutions through which economic models and technological potential are translated into industries, information infrastructures, and 'empowered' societies. We ought to engage with the ongoing scholarly debates on the articulation of local political economies with global political and economic trends. One further challenge is poised, how to bring together these two types of theory: on contextualist ICT innovation and on ICT-enabled development. This is not an easy task.

VI. Conclusions

In this respect, ICTD is becoming an increasingly richer research domain. Quantitative data on ICT and development may not be as abundant in emerging economie as in industrialized countries, but with concerted efforts by international development agencies tracking poverty alleviation, economic growth, and various human development indicators, quantitative ICTD studies that set out to reveal patterns and correlations become feasible. Qualitative researchers have ample opportunities for insightful ICTD research. There is scarcely any region or community that does not have interesting experiences with ICT innovation. Initiatives to promote ICTs are widespread and have now a history of adequate length to reveal the influences from various institutions and the effectiveness of various policies, as well as the formation of meanings and capacities for action. Unpredicted success cases, such as the emergence of the globally competitive software,"app" industry in Kenyan context or the phenomenal diffusion and innovative uses of mobile phones in Africa are particularly important for building theoretical underpinnings for the ramifications and complexities of ICT and development. Perhaps the primary motivation of ICT4D researchers is their appreciation of the potential of ICT innovation to contribute to the improvement of human condition.

But we are also a witness from our research the falsity of widely held technology deterministic expectations that ICT, by virtue of its technical properties, will have this or that development effect. Our task is to understand what it takes for ICT to contribute to improving the life conditions of the people who need such improvement the most, and it is to this end that the theoretical efforts have formed our discourse.

References

[1]. Adelakum, O. "Offshore IT outsourcing to emerging economies - analysis of readiness vs attractiveness," in: Proceedings of the 8th international working conference of IFIP WG9.4: Enhancing Human Resource Development through ICT, A.O. Bada and A. Okunoye (eds.), Abuja - Nigeria, 2005.

[2]. Al-Gahtani, S.S. "Computer technology adoption in Saudi Arabia: correlates of perceived innovation attributes," Information Technology for Development (10:1) 2003, pp 57-69.

[3]. Avgerou, C. "Transferability of information technology and organisational practices," in: Global Information Technology and Socio-Economic Development, M. Odedra-Straub (ed.), Ivy League, Nashua, New Hampshire, 1996, pp. 106- 115.

[4]. Avgerou, C. "The significance of context in information systems and organisational change," Information Systems Journal) 2001. Avgerou, C. Information Systems and Global Diversity Oxford University Press, Oxford, 2002.

[5]. Avgerou, C. "The link between ICT and economic growth in the discourse of development," in: Organizational Information Systems in the Context of Globalization, M. Korpela, R. Montealegro and A. Poulymenakou (eds.), Kluwer, Dordrecht, 2003, pp. 373-386.

[6]. Avgerou, C., and Land, F. "Examining the appropriateness of information technology," in: Social Implications of Computers in Developing Countries, S. Bhatnagar and M. Odedra (eds.), Tata McGraw-Hill, New Delhi, 2002, pp. 26- 42.

[7]. Avgerou, C., and Madon, S. "Framing IS studies: understanding the social context of IS innovation," in: The Social Study of Information and Communication Technology: Innovation, Actors, and Contexts, C. Avgerou, C. Ciborra and F. Land (eds.), Oxford University Press, Oxford, 2004, pp. 162-182.

[8]. Avgerou, C., and Walsham, G. (eds.) Information Technology in Context: Studies from the Perspective of Developing Countries. Ashgate, London, 2000. Bada, A.O. "Local adaptations to global trends: a study of an IT-based organizational change programme in a Nigerian bank," The Information Society (18:2) 2002, pp 77-86.

[9]. Bailur, S. "Using stakeholder theory to analyze telecenter projects," Information Technologies and International Development (3:3) 2007, pp 61-80. Barrett, M., and Walsham, G. "Managing IT for business innovation: issus of culture, learning, and leadership in a Jamaican insurance company," Journal of Global Information Management (3:3) 1995, pp 25-33.

[10]. Beilur, S. "Using stakeholder theory to analyze telecenter projects," Information Technologies and International Development (3:3) 2007, pp 61-80. Bell, S., and Wood-Harper, A.T. "Information Systems Development for Developing Countries," in: Information Technology in Developing Countries, S.C.

[11]. Bhatnagar and N. Bjørn-Andersen (eds.), North-Holland, Amsterdam, 1990, pp. 23-40. Berger, P.L., and Luckmann, T. The Social Construction of Reality Penguin, London, 1967.

[12]. Best, M.L., and Kumar, R. "Sustainability failures of rural telecenters: Challenges from the sustainable access in rural India (SARI) project," Information Technologies and International Development (4:4) 2008, pp 31-45.

[13]. Bhatnagar, S.C., and Bjørn-Andersen, N. (eds.) Information Technology in Developing Cuntries. North-Holland, Amsterdam, 1990. Bhatnagar, S.C., and Odedra, M. (eds.) Social Implications of Computers in Developing Countries. Tata McGraw-Hill, New Delhi, 1992.

[14]. Bitange Ndemo, Tim Weiss."Digital Kenya. An entreprenural revolution in the making," Palgrave Macmillan,Kenya, 2019.

[15]. Braa, J., Hanseth, O., Heywood, A., Mohammed, W., and Shaw, V. "Developing health information systems in developing countries: the flexible standards strategy," MIS Quarterly (31:2) 2007a, pp 381-402.

[16]. Braa, J., Monteiro, E., and Sahay, S. "Networks of action: Sustainable health information systems across developing countries," MIS Quarterly (28:3) 2004, pp 337-362.

[17]. Braa, J., Monteiro, E., Sahay, S., Staring, K., and O.H., T. "Scaling up local learning - experiences from South-South-North networks of shared software development," IFIP WG9.4 9th international conference 'Taking Stock of EDevelopment', Sao Paulo, 2007b.

[18]. Brown, W., and Brown, I. "Towards a research framework for a human developmentbased "bottom of the pyramid" ICT development strategy in South Africa," ECIS, Verona, Italy, 2009.

[19]. Carmel, E. "The globalization of software outsourcing to dozens of nations: a preliminary analysis of the emergence of 3rd and 4th tier software exporting nations," in: The Digital Challenge: Information Technology in the Development Context, S. Krishna and S. Madon (eds.), Ashgate, Aldershot, 2003a, pp. 359-367.

[20]. Carmel, E. "The new software exporting nations: impacts on national wellbeing resulting from their software exporting industries," Electronic Journal on Information Systems in Developing Countries (13:3) 2003b.

[21]. Carmel, E. "Taxonomy of new software exporting nations," Electronic Journal on Information Systems in Developing Countries (13:2) 2003c. Carmel, E., and Agarwal, R. "The maturation of offshore sourcing of Information technology work," MIS Quarterly Executive (1:2) 2002.

[22]. Ciborra, C. "Interpreting e-government and development: efficiency, transparency or governance at a distance?" Information Technology & People (18:3) 2005, pp 260-279. Commander, S. The Software Industry in Emerging Markets Edward Elgar, Cheltenham, 2005. D'Costa, A.P. "Uneven and combined development: Understanding India's software exports," World Development (31:1) 2002, pp 211-226.

[23]. Davis, C., McMaster, J., and Nowak, J. "IT-enabled services as development drivers in low-income countries: the case of Fiji," Electronic Journal on Information Systems in Developing Countries (9) 2002.

[24]. Davis, F.D. "Perceived usefulness, perceived ease of use, and user acceptance of information technology," MIS Quarterly (13:3) 1989, pp 319-340.

[25]. Dearden, A. "User-Centered Design Considered Harmful (with apologies to Edsger Dijkstra, Niklaus Wirth, and Don Norman)," Information Technologies and International Development (4:3) 2008, pp 7-12. Dedrick, J., Gurbaxani, V., and Kraemer, K.L. "Information technology and economic performance: a critical review of the empirical evidence," ACM Computing Surveys (35:1) 2003, pp 1-28.

[26]. Dourish, P. "What we talk about when we talk about context," Perspectives of Ubiquitous Computing (8) 2004, pp 19-30. Draca, M., Sadun, R., and Van Reenen, J. "Productivity and ICTs: a review of the evidence," in: The Oxford Handbook of Information and Communication Technologies, R. Mansell, C. Avgerou, D. Quah and R. Silverstone (eds.), Oxford University Press, Oxford, 2007, pp. 100-147.

[27]. Duncombe, R.A., and Heeks, R.B. "Enterprise across the digital divide: information systems and rural micro-enterprise in Botswana," Journal of International Development (14:1) 2002, pp 61-74.

[28]. Dutta, S., and Mia, I. "The Global Information Technology Report 2008-2009: mobility in a networked world," World Economic Forum. Fulk, J., and DeSanctis, G. "Articulation of Communication Technology and Organizational Form," in: Shaping Organization Form: Communication, Connection, and Community, G.

[29]. DeSanctis and J. Fulk (eds.), Sage, Thousand Oaks, California, 1999, pp. 5-32. Gilhooly, D. "Innovation and investment: Information and Communication Technologies and the Millennium Development Goals," The United Nations Millennium Project.

[30]. Goonatilake, L., Maizza-Neto, O., and Jayawardene, P. "Enhancing enterprise competitiveness in developing countries through the promotion of management information and benchmarking tools," in: Proceedings of the 6th International Working Conference of IFIP WG 9.4: Information Flows, Local Improvisations and Work Practices, S. Sahay, J. Miller and D. Roode (eds.), STS Conferences, Cape Town, 2000.

[31]. Harris, R.W., Kumar, A., and Balaji, V. "Sustainable telecentres? two cases from India," in: The Digital Challenge: Information Technology in the Development Context, S. Krishna and S. Madon (eds.), Ashgete, Aldershot, 2003, pp. 124- 135.

[32]. Harvey, J.T., and Garnett, R.F.J. (eds.) Future Directions for Heterodox Economics. University of Michigan Press, Michigan, 2008. Hassanin, L. "Egyptian women artisans: ICTs are not the entry to modern markets," in: Social Dimensions of Information and Communication Technology Policy, C. Avgerou, M.L. Smith and P. Van den Besselaar (eds.), Springer, New York, 2008. He, X. "The ERP challenge in China: a resource-based perspective," Information Systems Journal (14) 2004, pp 153-167.

[33]. Heeks, R. "Fourth generation languages (4GLs) and the Indian Software Industry," in: Information Technology in Developing Countries, S.C. Bhatnagar and N. Bjørn-Andersen (eds.), North-Holland, Amsterdam, 1990, pp. 251-264.

[34]. Heeks, R. "Information systems and developing countries: Failure, success and local improvisations," The Information Society (18:2) 2002, pp 101-112.

[35]. Heeks, R. "Theorizing ICT4D research," Information Technologies and International Development (3:3) 2006, pp 1-4.

[36]. Hofstede, G. Culture's Consequences: International Differences in Work Related Values Sage, London, 2004.

[37]. Jarvenpaa, S.L., and Leidner, D.E. "An Information Company in Mexico: Extending the Resource-Based View of the Firm to a Developing Country Context," Information Systems Research (9:4) 1998, pp 342-361.

[38]. Kanungo, S. "Information village: bridging the digital divide in rural India," in: The Digital Challenge: Information Technology in the Development Context, S. Krishna and S. Madon (eds.), Ashgate, Aldershot, 2003, pp. 104-123.

[39]. Kenny, C.J. "Expanding Internet access to the rural poor in Africa," Information Technology for Development (9:1) 2000, pp 25-32.

[40]. Kleine, D. "ICT4What? Using the choice framework to operationalise the capability approach to development," 3rd IEEE/ACM International Conferences on Information and Communication Technologies for Development Doha, Qatar, 2009, pp. 108-117.

[41]. Korpela, M. "Computer systems development for "delinking" in Nigeria," in: Global Information Technology and Socio-Economic Development, M. Odedra-Straub (ed.), Ivy League, Nashua, New Hampshire, 1996, pp. 116-129.

[42]. Korpela, M., Soriyan, H.A., Olufokunbi, K.C., and Mursu, A. "Made-in-Nigeria systems development methodologies: an action research project in the Health sector," in: Information Technology in Context: Studies from the perspective of developing countries, C. Avgerou and G. Walsham (eds.), Ashgate, Aldershot, 2000, pp. 113-133.

[43]. Kraemer, K.L., Dedrick, J., and Sharma, P. "One laptop per child: vision vs reality," Communications of the ACM (52:6) 2009, pp 66-73. Krishna, S., and Madon, S. "Information & Communication Technologies and Development: New opportunities, perspectives & challenges," Seventh International Working Conference of IFIP WG 9.4, Indian Institute of Management Bangalore, Bangalore, 2002.

[44]. Krishna, S., and Madon, S. (eds.) The Digital Challenge: Information Technology in the Development Context. Ashgete, Aldershot, 2003. Krishna, S., and Walsham, G. "Implementing public information systems in developing countries: Learning from a success story," Information Technology for Development (11:2) 2005, pp 1-18.

[45]. La Rovere, R. "Diffusion of IT and the competitiveness of Brazilian banking," in: Information Technology, Development and Policy, E.M. Roche and M.J. Blaine (eds.), Avebury, Aldershot, 1996, pp. 95-112.

[46]. La Rovere, R.L., and Pereira, M.V.R. "Adoption of ICT and competitiveness in the tourism sector: the case of Brazilian travel agencies," in: Proceedings of the 6th International Working Conference of IFIP WG 9.4: Information Flows, Local Improvisations and Work Practices, S. Sahay, J. Miller and D. Roode (eds.), SBS Conferences, Cape Town, 2000.

[47]. Leidner, D.E., and Kayworth, T. "A review of culture in information systems research: toward a theory of information technology culture," MIS Quarterly (30:2) 2006, pp 357-399.

[48]. Ma, L., Chung, J., and Thorson, S. "E-government in China: Bringing economic development through administrative reform," Government Information Quarterly (22) 2005, pp 20-37.

[49]. Madon, S. "Introducing administrative reform through the application of computerbased information systems: A case study in India," Public Administration and Development (13) 1993, pp 37-48.

[50]. Madon, S. "Evaluating the developmental impact of e-governance initiatives: an exploratory framework," Electronic Journal on Information Systems in Developing Countries (20:5) 2004, pp 1-13.

[51]. Madon, S. "Governance lessons from the experience of telecentres in Kerala," European Journal of Information Systems (14:4) 2005, pp 401-416. Madon, S. E-governance for Development: a focus on riral India Palgrave Macmillan, Basingstoke, 2009.

[52]. Madon, S., Reinhard, N., Roode, D., and Walsham, G. "Digital Inclusion projects in developing countries: processes of institutionalisation," IFIP WG9.4 9th international conference 'Taking Stock of E-Development', Sao Paulo, 2007.

[53]. Madon, S., and Sahay, S. "An information-based model of NGO mediation for the empowerment of slum dwellers in Bangalore," The Information Society (18:1) 2002, pp 13-19. Mann, C.L. "Information technologies and international development: conceptual clarity in the search for commonality and diversity," Information Technologies and International Development (1:2) 2004, pp 67-79.

[54]. Mansell, R. "From digital devides to digital entitlements in knowledge societies," Current Sociology (50:3) 2002, pp 407-426.

[55]. Mbarika, V.W., Kah, M.M.O., Musa, P.H., Meso, P., and Warren, J. "Predictors of growth of teledensity in developing countries: a focus on middle and lowincome countries," Electronic Journal on Information Systems in Developing Countries (12:1) 2003, pp 1-16.

[56]. Mbarika, V.W., Payton, F.C., Kvasny, L., and Amadi, A. "IT education and workforce participation: a new era for women in Kenya?," The Information Society (23:1) 2007, pp 1-18.

[57]. Miscione, G. "Telemedicine in the Upper Amazon: Interplay with local health care practices," MIS Quarterly (31:2) 2007, pp 403-425. Molla, A. "Downloading or uploading? The information economy and Africa's current status," Information Technology for Development (9) 2000, pp 205-221.

[58]. Munkvold, B.E., and Tundui, H.P. "The role of IT in supporting women entrepreneurs in urban Tanzania," in: Proceedings of the 8th international working conference of IFIP WG9.4: Enhancing Human Resource Development through ICT, A.O. Bada and A. Okunoye (eds.), Abuja-Nigeria, 2005.

[59]. Mursu, A., Soriyan, H.A., and Korpela, M. "Risky business: a case study on information systems development in Nigeria," in: The Digital Challenge: Information Technology in the Development Context, S. Krishna and S. Madon (eds.), Ashgate, Aldershot, 2003, pp. 318-339.

[60]. Myers, M.D., and Tan, F.B. "Beyond models of national culture in information systems research," Journal of Global Information Management (10:1) 2002, pp 24-32.

[61]. Ngwenyama, O., Andoh-Baidoo, F.K., Bollou, F., and Morawczynski, O. "Is there a relationship between ICT, health, education and development? An empirical analysis of five West African countries from 1997-2003," Electronic Journal on Information Systems in Developing Countries (23:5) 2006.

[62]. Nicholson, B., and Sahay, S. "Some political and cultural issues in the globalisation of software development: case experience from Britain and India," Information and Organization (11) 2001, pp 25-43.

[63]. Nicholson, B., and Sahay, S. "Embedded knowledge and offshore software development," Information and Organization (14) 2004, pp 329-365.

[64]. Nicholson, B., and Sahay, S. "Software exports development in Costa Rica: contradictions and the potential for change," IFIP WG9.4 9th international conference 'Taking Stock of E-Development', Sao Paulo, 2007.

[65]. Odedra-Straub, M. (ed.) Global Information Technology and Socio-economic Development. Ivy League, Nashua, New Hampshire, 1996.

[66]. Orlikowski, W.J., Walsham, G., Jones, M.R., and DeGross, J.I. (eds.) Information Technology and Changes in Organizational Work. Chapman & Hall, London, 1996.

[67]. Parkinson, S., and Lauzon, A. "The impact of the internet on local social equity: a study of a telecenter in Aguablanca, Colombia," Information Technologies and International Development (4:3) 2008, pp 21-38.

[68]. Pettigrew, A.M. "Contextualist research and the study of organisational change processes," in: Research Methods in Information Systems, E. Mumford, R. Hirschheim, G. Fitzgerald and A.T. Wood-Harper (eds.), North -Holland, Amsterdam, 1985, pp. 53-78. Porter, M., and Millar, V. "How information gives you competitive advantage," Harvard Business Review (63:4) 1984, pp 149-160.

[69]. Puri, S.K. "Integrating scientific ith indigenous knowledge: constructing knowledge alliances for land management in India," MIS Quarterly (forthcoming) 2007. Roche, E.M., and Blaine, M.J. (eds.) Information Technology, Development and Policy. Avebury, Aldershot, 1996.

[70]. Scott Morton, M.S. The Corporation of the 1990s: Information Technology and Organizational Transformation Oxford University Press, New York, 1991.

[71]. Silva, L. "Institutionalization does not occur by decree: institutional obstacles in implementing a land administration system in a developing country," Information Technology for Development) 2007.

[72]. Stahl, B.C. "Empowerment through ICT: A critical discourse analysis of the Egyptian ICT policy," in: Social Dimensions of Information and Communication

[73]. Zheng, Y. "Different spaces for e-development: What can we learn from the capability approach?," Information Technology for Development (15:2) 2009, pp 66-83.