Power and Interests in Developing Knowledge Societies: Exogenous and Endogenous Discourses in Contention

IKM Working Paper No. 11
August 2010

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About IKM Emergent

In April 2007, a five-year research programme was approved for funding by the Directorate General for International Cooperation (DGIS), part of the Dutch Ministry of Foreign Affairs. The programme, Emergent Issues in Information and Knowledge Management (IKM) and International Development, will be known as the IKM Emergent Research Programme.

The objective of the programme is to improve development practice by promoting change in the way the development sector approaches the selection, management and use of knowledge in the formation and implementation of its policies and programmes. It aims to achieve this by:

- raising awareness of the importance of knowledge to development work and its contested nature;
- promoting investment in and use of Southern knowledge production of all types and origins;
- creating an environment for innovation, supported by research on existing and emergent practice, for people working in the development sector to raise and discuss means of addressing these issues; and
- finding, creating, testing and documenting ideas for processes and tools which will illustrate the range of issues which affect how knowledge is used in development work and stimulate thought around possible solutions.

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About the author

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"Over the past few decades,
information and communication technologies (ICTs) have proven to be
a tremendous accelerator of economic and social progress"
(UNCTAD, 2009: xi).

"..a decisive intervention into the very discursivity of the modern sciences in order to craft another
space for the production of knowledge – another way of thinking, *un paradigma otro*, the very
possibility of talking about 'worlds and knowledges otherwise'"
(Escobar, 2002: 1).

1. Introduction[i]

The first opening quotation signals a belief in the transformative potential of the materiality of technology in line with a strongly Western-centric and universal idea of economic growth and development. The second highlights the need to conceive alternatives to the knowledge system originating mainly, but not exclusively, in the global 'North'. 'North' refers not principally to geographical orientation but to theories and practices which draw their insights from the project of modernity. The arguments of those scholars and practitioners who are critical of this predominant paradigm of change are the least visible in discussions about the role of information and communication technologies (ICTs) in reducing poverty (Hamelink, 2004; Thompson, 2008). Escobar argues that "development has relied exclusively on one knowledge system, namely the modern Western one. The dominance of this knowledge system has dictated the marginalization of non-Western knowledge systems" (Escobar, 1995: 13). In this paper, I use the texts of prominent United Nations and World Bank reports to illustrate how this process of marginalisation is achieved through recourse to social science models of the role of technology in economic and social change.

The first quotation illustrates the persistence of an exogenous model of development that underpins many of the interventions by the international development community aimed at employing ICTs to meet poverty reduction goals. The second signposts an endogenous model of development, one that focuses more directly on human beings and their resources and aspirations. The endogenous model is greatly overshadowed by the exogenous model in policy discourses. This has serious consequences – socially, culturally and economically - because the exogenous model (and indeed some versions of the endogenous model), cloaks the interests of investors in the global 'North' whose principal ambition is profits from the sale of digital technologies and the content that is hosted on or circulated through them.[ii] 'ICT' is a label that encompasses older and newer technologies of media and communication – very often associated with the Internet and mobile phones. I use this abbreviation with the understanding that claims and counterclaims about the *impact* of these technologies often skate over the specificity of their design and their use in practice. Generalisations about a category of technology are symptomatic of a tendency to highlight the potential of the latest technical innovations instead of working towards increasing the visibility of innovative developments in the design and use of these technologies, ones that are not often encompassed within the discourses of the dominant paradigms of 'ICTs for development'. This paper is intended to highlight some of the characteristic features of these discourses and the consequences of the interpenetration of the major

paradigms that have been informing policy interventions aimed at encouraging investment in ICTs to assist in poverty reduction strategies.

In the first main section of the paper the exogenous and endogenous models are introduced, indicating why the former is principally concerned with technology gaps, knowledge gaps and information dissemination, whereas the latter is more concerned with human beings, decision-making processes, and encouraging the poor to make their own society through participatory and inclusive processes of development. This section also includes a note on the method employed in the analysis which follows. In section three, selected texts from a sample of reports of UN agencies and the World Bank are analysed to illustrate visions of information or knowledge societies that are market- and predominately technology-led. In the fourth section, some of the insights from efforts to bring issues more consistent with the endogenous model to the fore are considered. This sets the stage for a discussion in section five of alternative perspectives that acknowledge multiple knowledges and emergent outcomes as being central to the way that ICTs contribute to poverty reduction. The concluding section considers changes in intervention strategies that could encourage knowledge societies that are more responsive to the goals of poverty reduction.

2. Exogenous and endogenous development models

The discipline of economics employs the 'exo' and 'endo' prefixes in a similar fashion to chemistry or physics. It is models of this kind that often inform or justify interventions aimed at stimulating economic growth in the developing world. In this regard, it is important to understand how economic logic deals with technological change and its relation to economic growth. In brief, economists traditionally take technological change to be exogenous. This model of economic growth assumes that technological progress is generated by processes external to the operation of the economic system, such as the search for new sources of knowledge. The Harrod-Domar model (Harrod, 1939; Domar, 1946), for example, is used in development economics to connect an economy's growth rate to savings levels and the productivity of capital. This model was the precursor to what came to be known as the exogenous growth or neoclassical model. In these models, the long run rate of growth is determined *exogenously* because technological change, a fundamental explanatory factor of labour productivity, is exogenous to the economic system.

In the 1950s Solow (1956, 1957) developed these models further, emphasizing the crucial importance of the rate of technological progress or innovation. He sought to determine how much of economic growth could be explained by the accumulation of capital and labour, by savings and increases in the labour force. His answer, that a minority of modern growth was accounted for by the conventional accumulations, challenged existing beliefs and policies. Solow argued that growth is accounted for (in industrialized economies) by 'disembodied' technological change, that is, new ways of deploying capital and labour (organizational innovation) and new knowledge about how to use capital and labour (productivity movements stemming from knowledge improvements). In the context of developing countries, these insights are often translated into an emphasis on the need to invest in leading-edge technologies with little consideration of the existing conditions of labour and capital use. It does not

come as a surprise, therefore, that ICTs became a focal point for investment since these technologies are widely associated with contributions to productivity gains and new organisational forms. This perspective is consistent with the 'modernization' paradigm (Mansell, 1982) which has informed development theory and practice to a significant extent since the 1950s and which is reflected, for example, in the promotion of investment in flat panel television screens for all schools in Ethiopia, with little regard to the uses to which they would be put. [iii]

Endogenous growth theory was developed in response to criticism of the exogenous model and in an effort to provide greater insight into learning and other factors within the parameters of economic models (Arrow, 1962; Romer, 1990, 1994; Rosenberg, 1982). In these models, the institutional set-up and regulatory or policy measures are understood to influence the long run rate of economic growth. The focus in this model is sometimes on information problems or on knowledge, for example, subsidies for research and development to create new knowledge and technologies or investment in the education of the labour force to enhance the innovative capacity of a country. Investments in ICTs and digital forms of content are regarded as key issues for endogenous growth theorists. Freeman (1995; Freeman & Soete, 1997) and Perez (1983, 1988) argued that these technologies have the potential to make an enormous impact on the economies of both industrialized and developing countries if they are appropriately developed and used. In this model, research focuses on 'national systems of innovation' and on whether these are capable of giving rise to the new knowledge that will drive economic growth. Lundvall (1996, 1992) has argued that this endogenous "systems of innovation" approach is of limited use in developing countries because it follows a model devised in the global 'North'. Nevertheless, this model has been further developed with attention to institutions and policies that are likely to foster innovation within developing countries and to policies encouraging openness to new knowledge and technologies (Cassiolato, *et al*., 2003).

Outside the discipline of economics, in sociology and, indeed, in the field of media and communication, there have been efforts to "stretch" the insights of the economics endogenous growth model into new territory, to understand social contributions to economic phenomena, including persistent poverty. One branch of this work is economic sociology.[iv] Granovetter's (1985) work on the problem of 'embeddedness' drew economists' attention to the importance of social relations within local contexts. This work was developed in many directions but for the purpose of this paper, the concept of embeddedness, coupled with the notion of 'endogenous' change, provides a basis for considering the endogenous model from a wider variety of disciplinary perspectives drawn from sociology, cultural studies, anthropology and beyond, which emphasize the situated, internal and local nature of knowledge and meaning creation – in short, the endogeneity of the socio-economic processes of development, including the development of knowledge societies.

In the context of interventions aimed at fostering knowledge societies and investment in ICTs for poverty reduction, an interdisciplinary approach offers a way to focus on diverse human preferences, actions, and outcomes in a way that is more consistent with acknowledging the variety of emergent development outcomes.[v] In the next sections of this paper, I demonstrate how very different

conceptions of the role of ICTs in 'development' appear to inform the texts of international agencies with remits relating to policy with respect to ICTs. The analysis is based on a sample of texts drawn from reports produced by agencies of the United Nations (UN) and the World Bank, mainly during the 1990s and 2000s at a time when the potential benefits of the information or knowledge society achieved a reasonably high profile in development discourses. The sample includes reports by the United Nations Conference on Trade and Development (UNCTD), United Nations Development Programme (UNDP), United Nations Educational, Scientific and Cultural Organization (UNESCO), the International Telecommunication Union (ITU) and the World Intellectual Property Organization (WIPO), as well as the World Bank. Texts produced by the World Summit on the Information Society (WSIS) in 2003 and 2005 are not examined in detail because these are the subject of several published studies which analyse the themes that were predominant. [vi]

The selection of texts is based on a keyword search including the terms: 'investment', 'learning', 'impact', 'transmission', 'knowledge', 'information', and 'ICT'. A formal discourse method is not applied but a systematic thematic analysis was undertaken using a spreadsheet capturing more than 600 paragraphs in which the relevant keywords were used. The process of writing reports of this kind is complex and it is political. Anyone who has participated in the drafting of such reports will know that arguments are included or excluded depending on many factors including the personalities and motivations of the individuals charged with writing and approving the final texts. These texts do not represent the views of all the individuals associated with them and they reflect arguments suggested by influential individuals outside the organisations. My purpose is not to tease out the origins of these contributions, but instead to render visible the main arguments that are in contention over a period of time. The aim is to illustrate ways of talking about the implications of ICTs and to suggest what has been excluded. As an analyst of the policies and actions of these organisations – and as an occasional participant as a consultant in their projects relating to ICTs since the early 1980s - I have some experience in the contexts in which such reports are produced and this has been helpful in selecting illustrative material for this paper based on my familiarity with much more material than can be reported here.

3. Knowledge Society Models for Development

In the post-War period, in parallel with the growing emphasis on the "information" or "knowledge" society in the industrialized countries, the potential of ICTs started to become an issue in development planning (Melody, 1971). At the international level, the two models – exogenous and endogenous – were much in evidence, culminating in the early 1980s in two internationally sponsored reports of considerable significance. The first, the MacBride Report (ICSCP, 1980/2004), presented the views of academics and policy makers who were seeking a new world information and communication order (NWICO) to redress asymmetries between the wealthy and poor countries of the world (Padovani & Nordenstreng, 2005). Aligned to some extent with what I have labelled the endogenous model, asymmetric relationships were at the core of its analysis (Mansell & Nordenstreng, 2006). The report's authors embraced a critique of one-way flows of information, whereby transnational corporations were understood to be exporting their films, news and

entertainment content around the world without the opportunity for reciprocity. The external/exogenous knowledge model was one that proponents of a NWICO sought to resist, but relatively little attention was given to local resources and capacities for resistance in the receiving (developing) countries, a view that was consistent with those of some of the economic dependency theorists at that time such as Amin (1974).

The second report that helped to boost the profile of ICTs was the Maitland or Missing Links Report (ICWTD, 1984). Here the principal concern was with the expansion of telecommunication networks and the aim was to reduce the technology gap between the rich and the poor.[vii] Aligned more closely with the exogenous model, it called for major investment in telecommunication and service applications as a means of addressing the exclusion of the poor, mainly in developing countries.

Technological innovation in ICTs, most noticeably in the form of the Internet and the World Wide Web, and later in the form of mobile telephony, sparked renewed interest in the gaps regarded as problematic particularly from the perspective of adherents to the exogenous model. For adherents to the endogenous model, these developments often seemed to spark new hope that dominant powers and voices might be resisted as a result of the new possibilities for diverse communicative networks and practices.[viii] By the time the Millennium Development Goals (MDGs) were announced in 2000, then UN Secretary-General Kofi Annan would say that "we will spare no effort to free our fellow men, women and children from the abject and dehumanizing conditions of extreme poverty, to which more than a billion of them are currently subjected" (UN, 2000: 55/2). At the time it seemed that Annan, like so many others, had become captivated by the potentially wealth-creating advantages of ICTs. As he said in a speech in 1997, the "informatics revolution" needed to be harnessed for the benefit of mankind (Annan, 1997).[ix] MDG Goal 8 included this statement: "In cooperation with the private sector, make available benefits of new technologies, especially information and communications".[x] Although in 2000 mobile phones were not perceived as having great importance, by 2010 the ICT target had come to be understood to relate principally to the diffusion of mobile phones and Internet access points (UN, 2008: 48; 2010a). This is because of their assumed potential to stimulate economic growth by closing the technology gap between the poor and the wealthy countries, in line with the exogenous model. Closing this gap is also expected to help to close the knowledge gap.

Only a decade earlier, the authors of the UNDP's first *Human Development Report* had sounded a clear warning about the folly of an overemphasis on technology while neglecting people and their well-being, stating that: "the real wealth of a nation is its people. … This simple but powerful truth is too often forgotten in the pursuit of material and financial wealth" (UNDP, 1990: 1). When the World Summit on the Information Society (WSIS), held in Geneva in 2003 and Tunis in 2005 under the auspices of UNESCO and the ITU, was convened, arguments consistent with both the exogenous and endogenous models were evident in the debates and in the texts. Engaged members of civil society organisations emphasized the failure of ICT strategies to respect endogenous concerns about poverty, human rights, participation and democratization. The persistent technology gaps were decried as financing of new networks to support the Internet and digital content was seen to be

flowing disproportionately to profitable markets in the developing countries.[xi] Although there was a dialogue about the need for a less technology-centred approach, this was not the predominant approach informing the WSIS deliberations.[xii]

How were the exogenous and endogenous models reflected in the texts of the reports on ICTs and development published by international agencies in the intervening years between the early MacBride and Maitland reports and the Summit?

3.1 The World Bank Perspective

Interventions to foster a global knowledge society have been informed by the exogenous or neoclassical model which suggests that "knowledge is like light".[xiii] "Weightless and intangible, it can easily travel the world, enlightening the lives of people everywhere" (World Bank, 1999: 1). The Bank's report on *Knowledge for Development* at the end of the 1990s, insisted that "information problems" or incomplete knowledge about attributes such as the quality of products or the creditworthiness of firms represent knowledge gaps. The authors of the Bank's report argued that "typically, developing countries have less of this know-how than industrial countries, and the poor have less than the non-poor". This emphasis on information problems and knowledge gaps may be partially explained by the currency of increasing attention in economics to the economics of asymmetric information for which several economists subsequently were awarded Nobel prizes in economics.

The key challenge was therefore to ensure access to more knowledge to address know-how problems. The fact that "new communications technologies and plummeting computing costs are shrinking distance and eroding borders and time" (World Bank, 1999: i) provided reason for hope that, because "knowledge also illuminates every economic transaction, revealing preferences, giving clarity to exchanges, in forming markets" (World Bank, 1999: 1), the diffusion of ICTs would help to fill the knowledge gap, thereby enabling market-led growth in the developing countries. If the diffusion of ICTs could be stimulated, the isolation of the poor could be overcome. "One of the great hardships endured by the poor, and by many others who live in the poorest countries, is their sense of isolation. The new communications technologies promise to reduce that sense of isolation, and to open access to knowledge in ways unimaginable not long ago" (World Bank, 1999: 9).

In this 'exogenous' model, there is no differentiation between external and indigenous information or knowledge and, in fact, external knowledge is privileged over internal knowledge. "For developing countries, acquiring knowledge involves two complementary steps: obtaining knowledge by opening up to knowledge from abroad, and creating knowledge not readily available elsewhere" (World Bank, 1999: 7). For this to happen, the policy emphasis seemed clear. The emphasis was to be placed first and foremost on an open trading regime, foreign investment and technology licensing with an emphasis on "facilitating the flow of information essential for effective markets" (World Bank, 1999: 7, 2). The role for development agencies also seemed straightforward. They needed to provide international public goods, act as intermediaries in the transfer of knowledge, and manage the rapidly

growing body of knowledge about development (World Bank, 1999). The *transfer* of knowledge and *investment in technology* were seen as the two main keys to growth. This emphasis was consistent with the growing emphasis on economic growth through investment in the immaterial (or knowledge) economy which, by the late 1990s, had been echoed in the wealthy countries' promotion of the knowledge-based economy or information society (Mansell, 2010). It is not surprising that then World Bank President, Wolfensohn, should attach significance to this model, whether for internal political reasons as argued by King and McGrath (2004) or because it was being propounded so pervasively by prominent economists.

Nevertheless, as we have seen above, in the 1980s and 90s, the economists' endogenous model was also becoming more influential and echoes of it can be found in this World Bank report alongside the exogenous model. There are allusions to a more heterodox economic model suggesting the need for consideration of a capacity to absorb new knowledge and to act upon it. As a result, education was deemed essential:

> "The explosion of new knowledge, accelerating technological progress, and ever-increasing competition make life-long learning more important than ever. To narrow knowledge gaps, societies must ensure basic education for all and provide opportunities for people to continue to learn throughout their lives. Basic education is the foundation of a healthy, skilled, and agile labor force. Lifelong education beyond the basics enables countries to continually assess, adapt, and apply new knowledge" (World Bank, 1999: 8).

It was also acknowledged that there might be too great an emphasis on a one-way flow of knowledge - "much of the discussion so far has focused on ways to facilitate the flow of knowledge from those who have much of it to those who have less: from industrial countries to developing, from governments to citizens, from teachers to students" (World Bank, 1999: 13). Effective communication was acknowledged to be a "two-way street", re-discovering that engaging people is an important feature in knowledge exchange and learning, perhaps as reaction to the earlier structural adjustment period of policy promoted by the World Bank and other agencies.[xiv] This would require an understanding of the needs of the poor and of their concerns as "only then can they be offered knowledge in a form that they can use and will accept. Almost always, listening to the poor is the first step in doing this well". However, the priorities remained "investing in human capital to increase the ability to absorb and use knowledge …, and investing in technologies to facilitate both the acquisition and the absorption of knowledge" (World Bank, 1999: 13, 25) that could be *offered* from external sources.

Wherever feasible, countries would be encouraged to adopt policies to enable them to "leapfrog" the industrial countries "by going straight from underdeveloped networks to fully digitized networks", with the aim being able "to take advantage of the new information and communication technologies in *disseminating knowledge*" (emphasis added) (World Bank, 1999: 57).[xv] The precepts of the exogenous model of acquiring external knowledge, disseminating it, and ensuring its absorption

reappear again and again throughout this report in the interest of stimulating economic growth. The asymmetric distribution of resources is alluded to briefly in this report. For example, it is acknowledged that if intellectual property right (IPR) protections continue to be tightened, this would slow developing countries' access to external knowledge resources, thereby increasing the knowledge gap and also shifting "bargaining power toward the producers of knowledge, most of whom reside in industrial countries" (World Bank, 1999: 35).[xvi]

Thus, although some distributional inequalities are recognized, making it more difficult to use technologies to enhance knowledge sharing, policies in line with the exogenous model, even with its economic endogenous model inflection, offered no solution other than "a slow process to create the capacity for policy analysis and dialogue, both in the government and in civil society" (World Bank, 1999: 138). The report is silent on who comprises civil society, on what processes might be used to engage the poor in dialogue, and on whether the arrival of mobile phones, Internet access and externally acquired "know-how", is the best or only way to be responsive to the needs of the poor. Insofar as the report is infused by the principles of the exogenous model, this is not surprising as these issues are not within the framework of mainstream economists' consideration of "information problems".

3.2 Variations of the endogenous model

As mentioned above, the first UNDP *Human Development Report* was published in 1990. As the authors put it, "the purpose of development is to create an enabling environment for people to enjoy long, healthy and creative lives" (UNDP, 1990: 1). Human development was understood here as being about enlarging the choices available to the poor. The report put a strong emphasis on individual capabilities, an approach more closely aligned with the endogenous model. In the 1999 *Human Development Report* published in the same year as the World Bank's report on *Knowledge for Development*, the economist, Streeten wrote:

> "Human development is the process of enlarging people's choices—not just choices among different detergents, television channels or car models but the choices that are created by expanding human capabilities and functionings—what people do and can do in their lives. At all levels of development a few capabilities are essential for human development, without which many choices in life would not be available. These capabilities are to lead long and healthy lives, to be knowledgeable and to have access to the resources needed for a decent standard of living—and these are reflected in the human development index. But many additional choices are valued by people. These include political, social, economic and cultural freedom, a sense of community, opportunities for being creative and productive, and self-respect and human rights. Yet human development is more than just achieving these capabilities; it is also the process of pursuing them in a way that is equitable, participatory, productive and sustainable" (UNDP, 1999: 16).

In spite of the much stronger emphasis on people, their values, capabilities and choices in line with an endogenous model, however, those authoring this report, which was also influenced by the work of Amartya Sen, [xvii] appear to be very strongly informed by the dominant exogenous model. They turn to the technologies of information and communication and the "technology gap" as a means of bringing about "development".

> "The past decade has proven the tremendous potential of global communications to provide information, enable empowerment and raise productivity. But it has also exposed the risks of dividing and polarizing societies, threatening greater marginalization of those left out and left behind. What lies in between is proactive policy. The greatest danger is the complacent belief that a profitable and growing industry will solve the problem by itself. But the market alone will make global citizens only of those who can afford it. Fulfilling the potential of global communications for development demands relentless effort in reaching out to extend and enhance the loop" (UNDP, 1999: 63).

To avoid the danger of complacency, the first of the seven goals is "connectivity", i.e. setting up telecommunication and computer networks. While other goals including fostering communities, building up skills, local content, adapting technology creatively to local needs, collaboration on matters of policy and governance, and financing, are all mentioned, the predominance of the exogenous model is striking. The main difference in emphasis compared to the World Bank's approach is with respect to the need for intervention on governance matters and a greater receptiveness to the idea that markets, alone, will not deliver the necessary technologies or knowledge needed to stimulate economic growth.

In order to encourage fairer outcomes and to reduce exclusion from the knowledge society, governance measures are strongly emphasized in this UNDP report. Governance is discussed in reference to "the framework of rules, institutions and established practices that set limits and give incentives for the behaviour of individuals, organizations and firms" (UNDP, 1999: 8). The UNDP report's authors are explicitly concerned with issues of distributional equity, observing that "when the market goes too far in dominating social and political outcomes, the opportunities and rewards of globalization spread unequally and inequitably—concentrating power and wealth in a select group of people, nations and corporations, marginalizing the others … the new culture carried by expanding global markets is disquieting" (UNDP, 1999: 2, 4).

Nevertheless, the solution to poverty reduction still is regarded as involving movement toward the knowledge society and new technologies, diffused as a result of a review of international intellectual property agreements, changes in the governance of global communication to embrace the interests of developing countries, public investment in technologies, and innovative mechanisms for fund raising to "ensure that the information revolution leads to human development" (UNDP, 1999: 10). The Internet is associated with shrinking time, shrinking space and disappearing borders and, although the spread of ideas and images is seen as enriching the world, the risk of reducing cultural concerns to

"protecting what can be bought and sold, neglecting community, custom and tradition" (UNDP, 1999: 33) is noted.

When the UNDP *Human Development Report* turned to human rights issues and to the new technologies in 2000 and 2001, respectively, the role of many local stakeholders in the human development process was acknowledged in line with the endogenous model, but the primary goal appears, nevertheless, to be that of meeting the promise of technology and know-how. Thus,

> "Individuals, governments, non-governmental organizations (NGOs), corporations, policy-makers, multilateral organizations—all have a role in *transforming the potential of global resources and the promise of technology*, know-how and networking into social arrangements that truly promote fundamental freedoms everywhere, rather than just pay lip service to them" (emphasis added) (UNDP, 2000: 1).

The emphasis is on ICTs that are to provide rapid, low-cost access to information about all areas of human activity. There is a suggestion of automaticity in the ways in which they become integrated into the lives of the poor and the exhortation to adapt external technologies is very strong. Thus, "not all countries need to be on the cutting edge of global technological advance. But in the network age every country needs the capacity to understand and adapt global technologies for local needs" (UNDP, 2001: 5). Even though "turning technology into a tool for human development" is seen to require "purposive effort and public investment, the aim is to diffuse innovations widely" (UNDP, 2001: 43).

The fact that "technologies designed for the wants and needs of consumers and producers in Europe, Japan or the United States will not necessarily address the needs, conditions and institutional constraints facing consumers and producers in developing countries" (UNDP, 2001: 95) is acknowledged, but the answer is seen to lie in global initiatives aimed at research and development and innovations that will flow across borders so that developing countries can become "technology followers" and adopt the regulatory frameworks of early adopters (UNDP, 2001).[xviii]

By 2004, the authors of UNDP's *Human Development Report* began to focus on cultural liberties and to ask explicitly, "do economic growth and social progress have to mean adoption of dominant Western values? Is there *only one model* for economic policy, political institutions and social values?" (emphasis added) (UNDP, 2004: 85).[xix] Cultural liberty is framed as being about diversity, being able to choose one's identity, and being able to lead lives that are valued, but it is also observed that:

> "For many people this new diversity is exciting, even empowering, but for some it is disquieting and disempowering. They fear that their country is becoming fragmented, their values lost as growing numbers of immigrants bring new customs and international trade and modern communications media invade every corner of the world, displacing local culture. Some even

foresee a nightmarish scenario of cultural homogenization—with diverse national cultures giving way to a world dominated by Western values and symbols" (UNDP, 2004: 85).

In this formulation, exclusion from participation in making choices about cultural identity because of social, political or economic disadvantage is highlighted in line with the endogenous model. However, by the late 2000s, UNDP had ceased to profile ICTs explicitly as a headline issue although, within its democratic governance theme, it still was concerned about access to information and e-governance.

While UNDP's reports emphasize people, participation and well-being in line with the endogenous model, the emphasis in UNESCO's reports appears to be more closely aligned with this model. In UNESCO's reports there is acknowledgement that the exogenous model of information flows is the antithesis of the encouragement of bottom-up development (UNESCO, 1996). In 2000, its *World Report on Communication* included a contribution by Hamelink, a leading analyst of the debates about the role of the media and ICTs in development. He suggested that "the question must be raised as to whether there can be any serious reduction of the ICT disparity, given the realities of the present international economic order" (Hamelink, 2000: 37), arguing that the interests of those in the 'North' were driving investment strategies in ICTs.

> "The North is in control not only due to strength but also because of lack of co-ordination in the South. National technology policies are largely determined by the work of global institutions and their rules and standards. It is vital that developing countries participate more forcefully and effectively in these institutions. … In many developing countries, the 'digital rush' is on to ensure connections with the electronic networks for trade, finance, transport and science" (Hamelink, 2000: 38, 34).

Later UNESCO reports would emphasize that "every society has its own knowledge assets. It is therefore necessary to work towards connecting the forms of knowledge that societies already possess and the new forms of development, acquisition and spread of knowledge valued by the knowledge economy model" (UNESCO, 2005: 17). UNESCO's 2005 report on *Knowledge Societies* sought to inculcate an idea of diversity and plurality and to move away from the idea that the (universal or global) "information society" is based mainly on technological innovation. Thus:

> "The concept of knowledge societies encompasses much broader social, ethical and political dimensions. There is a multitude of such dimensions which *rules out the idea of any single, ready-made model*, for such a model would not take sufficient account of cultural and linguistic diversity, vital if individuals are to feel at home in a changing world" (emphasis added) (UNESCO, 2005: 17).

The technological determinism of the exogenous model is criticised here as is the research evidence base for its overdependence on "scientific" knowledge, its neglect of humanist traditions and the cognitive and critical thinking skills required to distinguish between useful and useless information

(UNESCO, 2005). A plural conception of "knowledge societies" is invoked to emphasize "capabilities to identify, produce, process, transform, disseminate and use information to build and apply knowledge for human development. They require an empowering social vision that encompasses plurality, inclusion, solidarity and participation" (UNESCO, 2005: 27). There are hints of the need for different models to grapple with an over-emphasis on the commoditization of knowledge and on scientific and technical knowledge. It is suggested that, unless the technological innovations in ICTs facilitate the capacity of human beings to create shared meaning on the basis of an understanding of difference, they cannot be expected to support "the miracle of translation", that is, a reconciliation between universality and diversity (UNESCO, 2005: 148).[xx]

By 2007, although the UNESCO reports called for actions aimed at the diffusion of ICTs and digital media, they did so with reference to "core principles" such as equity, gender sensitivity, inclusion and cultural sensitivity (UNESCO, 2007b). As the discourse shifted from ICT diffusion and "information problems" towards "communication for development", UNESCO called for "a focus on the needs of marginalized groups and an in-depth understanding of the national communication environment" (UNESCO, 2007a: 11). For UNESCO, according to this report, there should be greater emphasis on the communicative process, rather than on technology *per se*, a position consistent with the endogenous model (and with some aspects of the earlier debates in this area during the 1970s).

> "Eliminating poverty in all its forms must involve a multi-dimensional approach that is predicated not only on achieving an adequate standard of living, but also on other civil, cultural, economic, political and social rights. Communication for Development, which puts people at the centre of decision-making processes, enables dialogue, facilitates information and knowledge sharing, builds understanding around development issues and amplifies the voice and influence of people in public debates" (UNESCO, 2007a: 33).

The following section considers some of the ways in which the discourses of both the exogenous and endogenous economic models can be seen to be inflecting each other and the extent to which the reports of the World Bank and UN agencies include insights from alternative models derived from other disciplinary perspectives.

3.3 Models in Contention

What is the apparent influence of the endogenous model's implications for human development, cultural diversity and participation on the World Bank's and other UN agencies' reports during the period leading up to the WSIS and subsequently? We have seen that the exogenous model has some traction within the discourses of reports that are more strongly influenced by the discourse of the endogenous model. Is there evidence of the reverse flow of ideas and arguments, whereby the insights from the endogenous model give rise to a change in emphasis in the texts of those we might expect to adhere mainly to the exogenous model?

Based on my examination of the reports in the sample, the World Bank seems to have retained its emphasis on "information problems" and "knowledge gaps", for example, stating that "perhaps the most powerful means of increasing the voice of poor citizens in policymaking is *better information*" (emphasis added) (World Bank, 2004b: 7). This is to be achieved through public disclosure, citizen-based budget analysis, service benchmarking, and programme impact assessments; the aim being to make "political commitments more credible, helping to produce better service outcomes" (World Bank, 2004b: 89). The role of the media and ICTs is seen as being helpful in this respect.

In 2009, the authors of the Bank's *World Development Report* argue that the diffusion of ICTs will drive convergence between leading and lagging areas of the world such that "globalization and technological progress in transportation and communication potentially provide a wider range of means to bridge the economic distance between leading and lagging areas" (World Bank, 2009: 93). It is principally the exogenous model which is informing this perspective: "Access to knowledge is easier" and it potentially enables the poor to benefit from developments at the world's technological frontier, replicating the earlier successes of the East Asian economies (World Bank, 2009: 95).[xxi] In this report there is acknowledgement that "the link between the free flow of ideas and economic development is somewhat ambiguous and not well researched" (World Bank, 2009: 101). Nevertheless, the assumption appears to be that the removal of restrictions on the "free flow of ideas" automatically will result in the enhancement of human well-being.

If the Bank's agenda continues to be informed by the exogenous model promoting global flows of information and knowledge, what evidence is there that the endogenous model was influencing other UN agencies that were focusing on the role of ICTs and the knowledge society?

The ITU appears to have remained strongly influenced by the exogenous model and particularly by the materiality of the technology as the impetus for growth although there are some suggestions of the need for local communities to make their own choices. In a 2006 ITU report, the discourse is about harnessing "the power of new technologies to local communities' own commitment to building a better future" (ITU, 2006: 3) within the framework of the governance reform 'trinity' of regulatory separation, competition, and privatization. Competition in the ICT sector is seen as "the sine qua non prerequisite for 'win-win' market development" (ITU, 2010: 8) and countries are encouraged to establish independent regulatory authorities in order to reduce technology gaps. The rate of mobile telephone subscriptions per 100 population is documented as having risen to an estimated 67 per cent in 2009, and the number of Internet users had grown steadily, with some 1.9 billion people having access to a computer by the end of 2009. It was noted by ITU that the countries of the African continent remained far behind in ICT penetration (ITU, 2010), again highlighting the notion of gaps rather than the underlying reasons for them.

A similar focus is present in UNCTAD reports during the same period, although UNCTAD authors sometimes exhibit a greater concern about the predominance of the exogenous model, highlighting the failure to focus on power asymmetries within this model. UNCTAD took on the role of promoting

ICTs for electronic commerce. Although its reports are strongly promotional of technology, there is some recognition that developments in cross-border trade are associated with new power relationships with respect to information activities. There also is concern about the implications with respect to whether developing countries spokespersons can be represented adequately in international debates about Internet governance and standards for e-commerce certification and procedures (UNCTAD, 1999). UNCTAD displays a more realistic assessment of the rush to invest in ICTs, stating that "if a small enterprise tries to compete with a large multinational simply by making a large investment in powerful equipment for its website, the chances are that its productive and/or distribution capacity will never allow it to recover the costs" (UNCTAD, 2001: xx).

It is acknowledged that investment in hardware and even in skills is insufficient without changes in organizational processes (UNCTAD, 2001: xxiv), an emphasis consistent with the endogenous model. Nevertheless, the exogenous model with a technology-led strategy retains its dominant place in the thinking of those responsible for UNCTAD interventions. For example, two of the contributors to the UNCTAD reports in this period indicate that "the evidence suggests that developing countries can increase the probability of catching up to more advanced countries through well-targeted investment in IT and Internet-related technologies" (Indjikian & Siegel, 2005: 698). This is argued alongside the observation that is not possible to verify whether investment in people should be given a higher priority; instead it is assumed that investment in technology and education are always complementary strategies.

In the case of UNCTAD, by the time its *Information Economy Report 2006* was published*,* the discourse of multi-stakeholderism and participatory approaches was starting to be visible: "Reality shows that different technologies have different contributions to make to poverty reduction and that, in order to be effective, pro-poor ICT efforts must be embedded in poverty reduction initiatives (including national development strategies) and best practices (such as multistakeholder and participatory approaches" (UNCTAD, 2006: xxiv). However, in effect, this meant little more than the development of ICT master plans, designed to achieve targets and objectives at the national level.

In 2008, there is renewed discussion of the knowledge gap and the need to foster technology diffusion, albeit through capacity building. Countries are asked to focus on technological innovation and to establish "the capacity to generate, assimilate, disseminate and effectively use knowledge" (UNCTAD, 2008: 1). References to modernization are in evidence as is the economic exogenous model, suggesting that "in the area of knowledge diffusion and technology transfer, externalities and spillovers can yield enormous benefits for the economy as a whole, and for the rest of world in the presence of technology flows among countries" (UNCTAD, 2008: 7). This is the economics exogenous growth model making itself felt in the discourse of interventions around "ICTs for development". The UNCTAD report on the Information Economy for 2010 is expected to emphasize ICTs and entrepreneurship and, especially, the opportunities for microenterprises, perhaps more in line with an endogenous model.[xxii]

With an emphasis on knowledge gaps, the WIPO initiated discussions about how the global intellectual property regime was influencing access to external knowledge and the possibilities for developing countries to protect their indigenous knowledge base. Its first international Roundtable on Intellectual Property and Indigenous Peoples was held in July 1998 (WIPO, 1998) and the existing regime – TRIPS[xxiii] - was depicted as offering "an opportunity to use intellectual property protection to accelerate economic, social, and cultural development, as well as to increase awareness of intellectual property as a key natural resource in developing nations" (WIPO, 1998: 9). TRIPS was expected to "encompass the protection of traditional knowledge and indigenous technology and folklore as they relate to the development needs of the LDCs" (WIPO, 1998: 12), but the emphasis is mainly on the development of technical standards to provide protection for intellectual property.

In 2005 WIPO called for the creation of a voluntary fund to enable the voices of indigenous and local communities to be heard through their participation in WIPO meetings (WIPO, 2005: 12). Nevertheless, the exogenous "information problem" approach is very much in evidence:

> "Intellectual property (IP), once seen as a technical matter for legal experts, has today become a central concern for governments, businesses, civil society, researchers, academics and individual creators. In a world where the economic growth of nations is driven increasingly by the creativity and knowledge of their people, effective IP systems – which create incentives for innovation and structures for sharing the results – are key to unlocking this human potential" (WIPO, 2009: 2).

Efforts by WIPO in this area are described as being community-led and benefit-sharing and to include representatives of indigenous groups, "in a way consistent with the interests and value systems they identify for themselves" (WIPO, 2009: 15-17). Although WIPO's remit is to ensure that the global regime of intellectual property rights is applied to indigenous knowledge, this goal does not go uncontested. Calls to accelerate work towards internationally agreed instruments are said to be slowed by diverse views "among states as to the content, legal character and scope of any instrument" (WIPO, 2009: 15-17). The relative neglect of research assessing the economic, social and cultural impact of the use of intellectual property systems in developing countries is acknowledged, but the aim is said to be to work to the "mutual advantage of producers and users of technological knowledge and in a manner conducive to social and economic welfare, and to a balance of rights and obligations", in accordance with the TRIPS Agreement (WIPO, 2009: 45).[xxiv]

By 2010, the Intergovernmental Committee on Intellectual Property and Genetic Resources, Traditional Knowledge and Folklore received a new mandate to "undertake text-based negotiations with the objective of reaching agreement on a text of an international legal instrument (or instruments) which will ensure the effective protection of genetic resources, traditional knowledge and traditional cultural expressions" (WIPO, 2010: para 14a).[xxv] This committee sees itself as enabling an inclusive and participatory process aimed at ensuring that a broad range of interests and priorities is taken into

account (WIPO, 2010: para 14a), an instance where we find the exogenous model inflected by the discourse of the endogenous model.[xxvi]

4. Modulating the Models

Stiglitz (2010: xiii) observed that "one might have thought that with the crisis of 2008, the debate over market fundamentalism – the notion that unfettered markets by themselves can ensure economic prosperity and growth – would be over". Unfortunately, it was not over. The ITU called mainly for measures to minimize regulatory risk for private sector investors (ITU, 2010: 15) while UNCTAD called for enhanced competition, tax reductions for ICT firms, infrastructure sharing and the rapid allocation of wireless radio spectrum (UNCTAD, 2009: xiii), still focusing on technology diffusion. By this time too there were signs of complacency as previous technology gaps were seen to be filled (by mobile phones), the suggestion being that as long as one has a subscription to a mobile phone, other factors that lead to persistent poverty will soon be overcome as a result of technology-led development. It is assumed that "the full right to communicate and participate in the information society" might be met by ensuring that "the mobile revolution puts a portable handset in the hands of all adults" (UNCTAD, 2009: 20) – very much the exogenous approach. While the diffusion of mobile phones certainly is providing many new opportunities, the point is that there is a continuation of the use of metrics of technology diffusion, consistent with the exogenous model, rather than a much needed shift to a consideration of how they become embedded in people's lives and to what ends.

UNESCO's recent reports display a critique of the exogenous vision of the knowledge society, while still succumbing to the discourse typical of that model in some instances. In *Investing in Cultural Diversity and Intercultural Dialogue*, the authors overtly call attention to the 'exogenous modernization paradigm', locating it in the US President Harry Truman's 1949 call to make the benefits of scientific, technical and industrial progress available for the improvement of 'underdeveloped' areas (UNESCO, 2009: 191). Its authors write, "when "development" is imposed upon a society from the outside, this invariably leads to ecological and societal dislocation" (UNESCO, 2009: 192).

> "Despite widespread assumptions to the contrary, there is no prescribed pathway for the development of a society, no single model on which development strategies should be based. The Western model of development, conceived as a linear process involving largely economic factors, is often incompatible with the complex social, cultural and political dimensions of societies pursuing different goals, reflecting their own values. The ideology of development has all too often tended to damage the social fabric and foundations — often rooted in traditions of communal solidarity — of the communities that have received 'development aid'" (UNESCO, 2009: 190).

The discourse in this report emphasizes cultural diversity and the deficiencies of "one-size-fits-all" approaches that are insensitive to the diversity of cultural contexts (UNESCO, 2009: 188). In this

endogenous view, cultural diversity becomes a resource rather than an opportunity for "hegemonization by stealth" (UNESCO, 2009: 13). The goal of the 2005 Convention on the Protection and Promotion of the Diversity of Cultural Expressions was to create conditions in which the diversity of cultural expressions can flourish and to bolster the "free flow of ideas" in the face of "risks of imbalances between rich and poor countries" (UNESCO, 2009: 30). This report drives home the notion that the exogenous model of information or knowledge acquisition should not be privileged, observing that intercultural dialogue requires "cognitive flexibility, empathy, anxiety reduction and the capacity to shift between different frames of reference … Humility and hospitality are also crucial" (UNESCO, 2009: 46).

The authors of the report reject the "symbolic annihilation" of a commercial media-saturated culture, fostered by multinational media corporations, and they look to respect for local specificities and 'globalization' for the keys to cultural diversity (UNESCO, 2009: 142). They appear to construct a bridge towards the UNDP's approach to human development, referring to an approach "which emphasizes the substantial freedoms expressed in such categories as life, health, self-expression, relationships and control over one's environment. This approach moves away from the overly materialistic emphasis on income, employment and wealth towards an emphasis on amplifying people's choices" (UNESCO, 2009: 199).

The authors of this report do not, however, escape some of the seductive aspects of the exogenous model. Even here, where the aim is to stem the 'push' of external content onto local communities, the emphasis is instead on the 'push' of local content from local people through the use of ICTs (UNESCO, 2009: 149). The lure of technological solutions is still visible. Now it is couched, not in terms of investment and access points, but in terms such as: "equipped with user-friendly software, inexpensive technical devices and 24-hour connections, audiences participate increasingly in the transmission and creation of information and knowledge, and are fundamentally altering the nature of information production" (UNESCO, 2009: 146). Social media, Web 2.0 and the co-creation of content are seen as providing the means to achieve poverty reduction. The authors point to the *impacts* of new technologies resulting in new forms of sociability and solidarity furthering "exchanges within and between minority groups and between majority and minority groups" (UNESCO, 2009: 237). Technology is uncritically associated with the forces of "the good", even though there is evidence that they may also be associated with the forces of incohesion (Bennett, 2003). Treated in this decontextualized way, there is no foundation for assessment and no normative presumption other than the view that more technology is "good". It is acknowledged that the *impacts* of ICTs have yet to be fully understood, but the emphasis is on the positive impacts of technological innovation on providing support for languages and communication, opening up to a global world. The model for education is the exogenous model to support the "*transmission* of local and indigenous knowledge and values" (emphasis added) (UNESCO, 2009: 108).

The report acknowledges that there is a concentration of power in the hands a few global companies such as Disney, Time Warner, General Electric, Sony, Vivendi and Bertelsmann as well as AOL,

News Corporation, CNN, MTV and Google (as of 2006)[xxvii] and suggests that "the vast majority of developing countries are not yet in a position to harness their creative capacities for development" (UNESCO, 2009: 132). Nevertheless, there is still much evidence of the technological optimism, so characteristic of the exogenous model. For example,

> "The innovations in ICTs are just beginning to have an impact on the structure and content of the mainstream media players and the possibilities they offer for alternative, small, local and community media. New practices and content — linked to the development of some of the newer cultural, informational and communication products accessible via the Internet, mobile phones or similar tools — are appearing. These permit the emergence of small production structures targeting micro-markets and new models of content creation and delivery. New technologies are having a major impact on the dissemination of media content, especially in the field of publishing, where the reduction of fixed costs associated with production and storage, the possibility of doing small print runs (print on demand) and selling online have favoured the emergence of small, artisanal publishing houses catering for niche markets (e.g. Traficante de Sueños)". (UNESCO, 2009: 134)

Despite the technological potential, as the authors of this report observe, the landscape "remains marked by power imbalances (social, political and economic in nature) and driven by profit maximization, … The emergence of counter-flows is a promising trend towards the reduction of those imbalances" (UNESCO, 2009: 137). The relationship between ICTs and development is one of "uncertain impact*",* asymmetric and differentiated certainly, but informed by exogenous impacts of the fruits of technological innovation (UNESCO, 2009: 138). The authors of this report also favour an approach that focuses "on the participation of stakeholders in decision-making about what constitutes poverty" (UNESCO, 2009: 199), but they assume that "full participation" follows from the spread of access to technologies and the media as long as universal access is guaranteed (UNESCO, 2009: 150).

On balance then, based on the foregoing analysis, it appears that the interpenetration of the exogenous and endogenous models does not result in a distancing of the latter from the former in a way that encourages departures from the advocacy of a "one knowledge system" approach as Escobar indicates. While the endogenous model encourages a turn towards human development, an idea that "posits that human beings are the ends as well as the means of development, challenging the focus of many economists and policymakers on *per capita* economic growth" (Hulme, 2010: 15), it does little to orient policy away from a concern with "technology" and "knowledge" gaps as far as investment in ICTs is concerned. It does little to bring into the policy framework an acknowledgement that policies in this area are, in fact, shaped principally by the interests of the ICT producers and, indeed, as Hulme argues, it is the interests of the economically powerful countries and international institutions that are shaping progress towards the MDG targets. He suggests that there is a need for a stronger epistemic community to advocate measures in line with the arguments of those more closely

aligned with the human development approach or the endogenous model, rather than with the neoliberal exogenous model.

Another variant of that model is visible in Gore's (2010: 76) advocacy of a "productive capabilities approach". This he says is founded upon heterodox endogenous growth theories that start from the assumption that economic growth depends on the technological capabilities of economic agents and institutional arrangements as well as on demand. Such counters to the exogenous model are important, but they tend to retain premises that privilege exogenous knowledge and technology. The economics framework, even in its endogenous form, provides weak conceptual tools for considering processes that would enable occasional references to "full participation" or to "diversity" to be instantiated in the practice of development institutions. What then is the alternative?

5. Multiple Knowledges Paradigms

Then World Bank President James Wolfensohn observed as early as 1998 that "we are realizing that building development solutions on local forms of social interchange, values, traditions and knowledge reinforces the social fabric. We are starting to understand that development effectiveness depends, in part, on 'solutions' that resonate with a community's sense of who it is" (UNESCO, 2009: 192-3),[xxviii] but the full implications of this observation do not appear to have taken hold in the discourses employed in the Bank's reports. Similarly, UNESCO's references to the fact that "the concept of learning communities or learning societies has arisen of late to emphasize the value of self-learning and innovative learning in the context of adapting to needs and shaping one's desired future" (UNESCO, 2009: 108) seem to have done little to encourage discussion of what "self-learning" might imply.

The challenge in developing both ICTs and knowledge societies in ways that are responsive to the needs of the poor goes beyond building more effective bridges between the contending exogenous and endogenous models. McGregor and Sumner (2010: 108) seem to acknowledge this when they argue that human well-being requires attention to material, relational as well as subjective well-being. "It emphasises that capabilities and conditions cannot be considered in isolation from each other and wellbeing-focused development policy will usually require action that works on *both human capabilities and societal conditions at the same time*" (emphasis added). It follows that the capabilities and aspirations of the poor and the structural norms and power relations in the social and economic order both need to be considered if ICTs are to become embedded in ways that are valued by the poor. It is imperative to recognise that purely technical and scientific responses will be ineffective and, instead, to acknowledge that it is essential to "draw on a broad range of cultural experiences, institutions and practices, *including those of local and indigenous knowledge systems*" (emphasis added) (UNESCO, 2009: 207).

The italicized text implies receptivity towards participatory approaches and multiple sources of knowledge as well as the need to overcome persistent biases "favouring knowledge and values that are developed in the North, over the local knowledge, concepts, language and understanding of civil

society and staff in the South" (Zirschky, 2009: 8).[xxix] Beardon and Newman's (2009: 24) analysis of the ways that information derived from participatory approaches are used by international NGOs concludes that "in general, international development NGOs are adopting more rights-based and bottom-up approaches to understanding and responding to development. And yet, so many of the structures and systems they employ strengthen or reinforce existing power relations, based on wealth and notions of scientific or expert knowledge".

These insights arise out of the Dutch funded, 'International Knowledge Management – Emergent' (IKM-E) research programme. The participants in this programme have sought to privilege the endogeneity of ICT and knowledge-oriented interventions, but they struggle with what this means in practice.[xxx] This programme, which includes participants from the academic and practice-based communities in the global 'North' and the 'South', have turned to "practice-based approaches" as one answer to this challenge. They have done so in a search for ICT-related interventions that can be responsive to the aspirations of those for whom policy interventions are intended. For example, Ferguson et al. (2008) discuss a practice-based, community-driven approach that privileges "epistemic diversity" (Molenaar, 2006), "allowing for other knowledge systems and the specific socio-cultural backgrounds of communities to be taken into account … This means that 'imported' knowledge is irrelevant unless it recognizes and is aligned with the multiple knowledges of the intended beneficiaries" (Ferguson, *et al.*, 2008: 13).   Rather than emphasizing the export of knowledge, the priority is instead to foster local knowledge capacities.

There are numerous conceptions of "epistemic" or knowledge-based communities in the social science literature, including the notion of "epistemic community", understood as "a network of professionals with recognized expertise and competence in a particular domain and an authoritative claim to policy-relevant knowledge within that domain or issue-area" (Haas, 1992: 3). This concept, like many others in this category, does not explicitly invoke a theory of power that might suggest why some ideas come to be privileged and others do not. In Molenaar's (2006) approach to epistemic diversity, "different discourses, different *knowledges* can coexist, rather than placing a single knowledge paradigm at the heart of all development discourses" (Ferguson, *et al.*, 2008: 30).   It is recognized in the science and technology studies literature that societies institutionalize the process of evaluating knowledge claims in different ways and that they act on them in different ways (Chinoya, 2007; Jasanoff, 2005). The attraction of "blueprints" or templates for policy and action based on models that do not acknowledge this, in this case, in the field of ICTs and knowledge societies, is attributable partly to the fact that policy makers find it difficult to switch between discourses and commitments. The result is a tendency to import ideas and explanations in a decontextualized way (Jones, 2009: np), into contexts where they have little, no, or different meanings.

Powell, co-ordinator of the IKM-Emergent programme, argues that,

> "All visions, no matter how top–down or directive, view development as a process which
> involves change for the better, however defined, which in turn involves people doing things

differently. … It is a process which cannot happen, and certainly cannot lead to the intended outcomes, unless it is based *both* on a good understanding of the particular socio-economic reality that 'the development' is intended to change *and*, just as importantly, on an appreciation of the perceptions of local populations as to their options in that reality. Without such 'knowledge', interventions fail, as we have seen time and time again".

"If we are interested in applying knowledge to development problems, our concept of knowledge needs to extend to the user's successful receipt and understanding of such knowledge. Failure to achieve this means we may have created knowledge, but we have not created the conditions in which it can be applied" (Powell, 2006: 520).

A practice-based approach such as these quotations call for is synergistic with the endogenous model but it needs to be extended to address the processes of meaning construction and interpretation and to take local contexts into consideration. One means of achieving this is to find ways to enable meanings to emerge through open, emergent processes of dialogue. Zirschky (2009: 22), for example, calls for:

"… a process perspective of knowledge. By focusing on the processes that support people in their pursuit, as well as internalization and application, of knowledge to their business practice, knowledge is understood as multi-layered and multi-faceted. This perspective covers the idea of context dependency, which means that the specific context in which knowledge is localized is taken into account; hence, awareness of multiple knowledges is created".

The IKM-Emergent Programme is seeking to give a higher profile to alternatives to the predominant discourses and models of ICTs and development. These aim to reflect on the positions of those claiming expertise which has been acquired in contexts different from their application. The aim is to counter biases that make it difficult to be responsive to local aspirations. In line with the discourses aimed at enabling talk about "worlds and knowledges otherwise", and rooted in resistance to singular, universalising models of social change,[xxxi] the programme participants are seeking to acknowledge that the consequences of the development and application of technologies can best be understood as "a consequence of the interactions of local agents" (Mowles*, et al.*, 2008: 810).

Drawing upon the communities and networks of practice approach, originating in work developed in part by Brown and Duguid (2001), a practice-based approach seeks to account for the context in which knowledge is localized for situated learning. Knowledge is understood to gain meaning as a result of the way it is used in the context of interaction (Orlikowski, 2000, 2002). It is also understood as being multi-layered and multi-faceted (Zirschky, 2009: 9). These approaches tend to distance themselves from individual meaning construction, moving towards collective meaning construction and action (V. A. Brown, 2006; Jenkins, 2010: 13). Complex issues are dealt with by bringing together disparate knowledge cultures, seeking to ensure that specialized (exogenous or endogenous) knowledge is responsive to commonsense questions. Instead of focusing on "information problems",

rhetorical forms of argumentation can be employed to subvert "normal power relationships, placing power in the hands of the end-user, the person on the ground who will be most affected by whatever new direction is chosen, rather than the person with positional authority or with educational or economic advantage" (Jenkins, 2010: 13).

These approaches are not, however, without problems which are partly a result of the values embedded in the particular designs of specific ICT systems that are in use. As Kirimi and Wakwabubi's (2009: 1) study of the use of knowledge yielded by participatory approaches in Kenya indicates "this knowledge is not only *inaccessible to most people* but … it is also stored in formats that are not user-friendly. Learning is therefore hampered by the way knowledge is stored and made accessible by organizations to both internal and external audiences" (emphasis added).

In developing alternative models of change, there is, in addition, the challenge of communicating with those working mainly with frameworks offered by the exogenous and some variations of the endogenous models as discussed in this paper. In most cases, these assume a simple cause and effect relationship between ICT programme initiatives and outcomes (Thompson, 2008). The aim of the programme is "to demonstrate ways of working, produce products and tools and involve and engage the development community, including policy makers in government departments, to set out an alternative, or rather, a series of alternatives to current majority practice" (Mowles, 2008: 6). The concepts of multiple knowledges and emergent processes are challenging to convey to those not involved in the IKM-Emergent programme (IKM Emergent, 2010: 12). This is because they question the epistemological foundations of the predominant models that many development organisations work with. The idea of "emergence" itself can be threatening. It refers to an understanding that "uncommon combinations of common events and circumstances" emerge that are not predictable in advance (Hedström, 2005: 100). Interpretations of information and meaning construction to form new knowledge follow a pattern that is "emergent": "we could expect a combination of the expected, the unexpected and the unwanted to occur" (Mowles, 2008: 10).

In this view, interventions aimed at the use of ICTs or knowledge in support of poverty reduction must be open to emergence, rather than being locked into the premises of either the exogenous or endogenous models. Some see great potential in recent ICT innovations such as social networking and Web 2.0, for a "continual dialogue between multiple modernisms and rationalities in a manner that allows for judgement between these, and for a resultant, qualified, impulsion towards progress" (Thompson, 2008: 823), and there is evidence that this is happening. In practice, however, it is as easy for these new technologies to be appropriated by those who would exploit others as it is for them to be appropriated by those concerned with the kinds of social transformation that are regarded as being positive by local groups. The challenge addressed by the IKM-Emergent programme is how to bring disparate groups into a dialogue that leads to action and how to encourage a reframing of those dialogues that is fluid enough to work within a field of ICT intervention that is uncertain, emergent and unplanned.

Conclusion

In many respects, it is as if those who insist on the centrality of people's lives and livelihoods in ICT programmes had not articulated alternative ways for this to be achieved over recent decades. This is the conclusion suggested by the analysis of the discourses used in the reports examined in this paper. The analysis confirms that most government policy makers and authors of reports by multilateral agencies engaged with the challenge of meeting the MDG goals relating to ICTs are still captivated by the idea, informed by the exogenous model, that "knowledge is like light". The inflection of this model with insights from the endogenous model means that the emphasis shifts towards capabilities, human development, power asymmetries and knowledge and education.   But this inflection is not sufficient to reveal the means through which power is exercised in the process of meaning construction, that is, in the absorption of new knowledge, whatever its provenance. Articulations of power influence how the process of evaluating knowledge claims is organized, not only between the global 'North' and the 'South', but also among diverse groupings within countries and regions.

The exogenous model favouring a focus on the "technology gap" and the "information problem" is visible in the discourses used by UN agencies and the World Bank, even when these are accompanied by discourses highlighting participatory processes and local contexts which resonate with the endogenous model. Most variations of this model do not, unfortunately, provide conceptual hooks or practice-based procedures for the major changes in ICT intervention strategies that would facilitate the re-interpretation of meanings within the local contexts of the poor.   Neither model provides insights into the frameworks for development interventions that would offer the resources for a shift toward emergence or an acknowledgement of the validity of multiple knowledges.

If the dynamics of development, and specifically those of knowledge societies based partly on the use of ICTs, are emergent, then there will be intended as well as unintended consequences resulting from the actions of those involved.   As a result, interventions aimed at employing knowledge or technologies to redress inequalities of whatever kind need to be flexible because "it makes no sense to ignore these emergent realities in order to stick with a pre-ordained plan. There must be processes for identifying, analysing and responding to the unexpected or the emergent and changing plans, possibly radically …" (Rafiq & Gulzar, 2009: 22). The whole idea of an "outcome" needs to be rethought so as to acknowledge that "change is situated and local" (Rafiq & Gulzar, 2009: 8).

While practice-based, emergent approaches offer an attractive way forward, on their own they do not address structural issues that give rise to unequal power relationships in the first place. This requires an analysis of the interests of those who resist alternative approaches, an agenda that reaches into the realms of politics and power. Some work has been done on the influence of ideas in the international relations field (Finnemore, 1996), for example, on the influence of politics in the development context with respect to IPRs (Shadlen, 2009), and on government networks influencing the appropriations of ideas about development interventions (Martinez-Diaz & Woods, 2009). There also is research on networks of stakeholders in the ICT, media and communication, and knowledge

society areas (Mansell & Raboy, 2010 in press-a; Padovani & Pavan, 2010 in press). However, if we are to enable multiple knowledges to influence action in the interests of ICT and poverty reduction, much remains to be done to trace the flows of contending ideas and instances where the dominant ones are countered successfully. A research and practice-oriented effort will be needed to document the harm done by the economics versions of exogenous and endogenous models of change and to encourage greater receptivity to the insights drawn from other more critical perspectives which focus on emergent systems and experience in the field.

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Endnotes

[i] This paper initially was prepared for the Communication Technology and Policy (CTP) Section, International Association for Media and Communication Research (IAMCR) Conference 2010, 19-22 July, Braga. The conference version of this paper benefitted from comments by Mike Powell, Claire Milne, and David Souter which were very helpful. The opinions expressed here of course are my own.

[ii] Corporate representatives of ICT companies including Cicso Systems, HP, Lucent, Microsoft, Motorola, Intel, Nokia, Oracle, Siemens, Sun Microsystems often participate in panels discussing the future of ICT developments in many parts of the world in which they seek to invest. Representatives of these companies participated in the WSIS. Some of these and others are represented, for instance, on the Global Information Infrastructure Commission (see www.giic.org) as well as UN-GAID (see www.un-gaind.org) where participants include Nokia and Cisco which are on the Strategy Council. As an increasingly significant player, China's advocacy of investment is also coming under scrutiny, see http://www.columbia.edu/itc/sipa/nelson/newmediadev/home.html, accessed 27 Aug. 2010.

[iii]. See Draca et al. (2007) for an up-to-date discussion on this point. The economic analysis of the associations between ICT investment and productivity gains are not discussed further here. For a detailed analysis of the problematic role of these kinds of assumptions about ICTs, see (Gagliardone, 2010).

[iv]. The term was first used by Jevons in 1879 and was also present in the works of Durkheim, Weber and Simmel focusing on modernity, rationalization, secularization, social stratification and religion.

[v]. For critiques of the dominant approaches to ICTs and development, see for example (Avgerou & Walsham, 2000; Madon, 2000; Nulens & Van Audenhove, 1999; Wade, 2002).

[vi]. See (Padovani, 2005; Padovani & Nordenstreng, 2005) for a similar analysis focused more directly on the WSIS.

[vii]. The technology gap with respect to ICTs soon came to be labelled as the 'digital divide' and is the subject of a voluminous literature that is not included here.

[viii]. The scholarly literature is not discussed in this paper. Interested readers are referred to (Cassiolato, 1996; d'Orville, 1996; Drake & Nicolaidis, 1992; Ernst & Lundvall, 1997; Galperin, 2004; Girvan, 1994; Hamelink, 1996; Heeks, 1996; Jensen, 1996; Mansell, 1993, 1998, 2009; Mansell & Raboy, 2010 in press-b; Mansell & Wehn, 1998; Mitter, 1995; Ó Siochrú*, et al.*, 2002; Samarajiva & Shields, 1990).

[ix]. The UN General Assembly passed two resolutions on communication for development in the UN system and encouraged decision makers to include it as an integral component in developing programmes and projects in 1995 and 1996. This is not to suggest that Annan personally was persuaded by this view, but rather than as a leader, he was promoting this view in his position as Secretary-General of the UN.

[x]. See http://www.un.org/millenniumgoals/global.shtml accessed 20/05/2010, Goal 8, Target 5. Some argue that this was a tokenistic afterthought without meaningful indicators for measurement. However, it was included and indicators were established to report numbers of fixed telephone lines, mobile cellular subscriptions and Internet users per 100 population as well as fixed and mobile broadband subscribers per 100 population.

[xi] See (Adam, 2005) for a discussion of the way financing was perceived at this time. Efforts were made to make the earlier insights into these debates available. The MacBride report, republished in 2004 by Roman & Littlefield, made it accessible to a wider public; the Maitland report was revisited in an edited collection (Milward-Oliver, 2005). This is not to claim that these reports were read by those engaged in the main deliberations during the WSIS.

[xii] This is evident in the main texts produced by the WSIS which have a strong technology-led orientation, despite the concessions to the importance of a "people-centred, inclusive and development-oriented Information Society" respecting human rights (UN, 2010b; UN/ITU, 2003a, 2003b, 2005a, 2005b).

[xiii]. This may also be a conflation of Thomas Jefferson's (1813: 1291) statement: "He who receives ideas from me, receives instruction himself without lessening mine; as he who lights his taper at mine receives light without darkening me. The ideas should freely spread over the globe, for the moral and mutual instruction of man, and improvement of his condition, seems to have been peculiarly and benevolently designed by nature, when she made them like fire, expansible over all space, without lessening their density in any points and like the air in which we breathe, move, and have our physical being, incapable of refinement or exclusive appropriation. Inventions then cannot, in nature, be a subject of property". Also see the works of economists such as Quah (1999) on the weightless economy.

[xiv] For an illustration of how this absence of consultation would work in practice, see Madon's (2009) account of e-governance implementation in India.

[xv]. See (Soete, 1985) for an early discussion of technological leapfrogging and (Abramovitz, 1986) for factors that enable countries to catch up with the modernizing leaders. Steinmueller's (2001/2) discussion of technological leapfrogging emphasises the difficulties in undertaking this process, though he ultimately ends on an optimistic note as does Soete.

[xvi]. See also CPSMA (1997) which raised issues of access with respect to managing data as well as IPR issues confronted by those in developing countries.

[xvii]. See (Streeten, 1982a, 1982b) and (Sen, 1999a, 1999b).

[xviii]. See (Rogers, 1995; von Hippel, 1988) for a discussion of followers and leaders.

[xix]. This report was strongly influenced by Amartya Sen's work.

[xx]. The authors of the report are citing the work of (Appadurai, 1990; Bhabha, 1996) and of (Ricoeur, 1992; 2004: 78) in this respect.

[xxi] The benefits of 'technological leapfrogging' and the model provided by the East Asian economies has been discussed extensively and criticised as a model for other regions of the world, see for example, (Amsden, 1989; Kim & Nelson, 2000; Soete, 1985) and (Marcelle, 2004), specially on ICTs, most arguing that insufficient attention had been given to 'absorption capacity' and/or to the specificity of innovation systems in different countries.

[xxii] The report is to be published in October 2010. Personal communication with D. Souter, 24/08/2010.

[xxiii]. The Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS) forms Annex 1C of the Marrakesh Agreement Establishing the World Trade Organization, signed in Marrakesh, 15 April 1994.

[xxiv]. Discusses mainstreaming the development agenda into WIPO work (WIPO, 2010).

[xxv]. Annex 1 contains the recommendations in full and action on them.

[xxvi] The World Bank's own programme on indigenous knowledge also seemed to embrace some aspects of the indigenous model, though there is almost no mention in its five year report of the potential of ICTs. See (World Bank, 2004a). The Website for this programme suggests that it has lost momentum with no updates since 2005.

[xxvii] See (Albarran*, et al.*, 2006; Bielby & Harrington, 2008) on media concentration generally and (Van Couvering, 2010) on concentration in the search engine industry, notwithstanding opportunities for new start up firms which are numerous.

[xxviii]. Citing (Duer, 1998).

[xxix] There are some who remain sceptical of the benefits of making ICTs available for consumption. As Heeks (2005: 3) argues "ICT initiatives reaching out to citizens are beloved by politicians and agencies because they grab media attention. They are also the ones that fail. Far more effective are the back office applications that help better planning, decision-making and management. They may not attract the limelight but they are more likely to sustain and to have a mass-scale impact". In the case of mobile technology consumption too, the changes are not consistently positive especially when gender issues are considered (Jagun, et al., 2008). Heeks (2010: 637) argues that the evidence on the contribution of ICTs to development is 'progressive', rather than 'disruptive' and acknowledges a still weak evidence base. As he puts it, "That is not to denigrate that contribution, but to recognise that it does not fulfil the promise of ICT that it would be a disruptive technology; that it might 'change the rules of the game' and deliver an ICT-enabled transformation of development processes and structures that could be called 'Development 2.0'. Whether ICTs can, ultimately, have a more transformational contribution remains an open question".

[xxx] The writer is a member of the Steering Committee of IKM-E.

[xxxi] For example, as espoused by (Chambers, 2008; Freire, 1970/1996; Gumucio-Dagron, 2001, 2009; Gumucio-Dagron & Tufte, 2006).