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The Information Society and the Digital Divide: Some North-South comparisons

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ABSTRACT

The concepts of the Information Society and the Digital Divide are reviewed in the context of national and international policies, many of which are techno-economic in nature and lacking a genuine social dimension. This criticism applies to programs in both the emerging and developed worlds. This social dimension must include attention to regulatory and access issues and critically, address core issues of poverty and living standards, including information poverty. The role and significance of information and knowledge need to be better understood in a world where intangible value is increasingly dominant and where metrics for knowledge are at best rudimentary.

Keywords: *Information Society; Digital Divide; World summit (WSIS);*

THE INFORMATION SOCIETY

Although interest in the concept of society as *information society* dates back to the 1960s (Bell 1969) it virtually exploded during the 1990s. Initially much of the impetus for this widespread manifestation of national Information Society initiatives was explicitly economic or industrial (Brazil, Ministry of Science and Technology 2001). However, in Europe, the first wave of Information Society policy, that focused heavily on the liberalisation of telecommunications and the development of information and communication technologies (ICTs) was followed by a second phase, more concerned with the wider social aspects including issues of social cohesion and the digital divide (Henten et al 1996, Henten and Kristensen 2000, Anttiroiko 2001). Despite recognition of these major social issues and repeated endorsements by governments and international agencies of their continued significance, much of the impetus in these programs continues to stem from techno-economic rather than social drivers (Martin 2005).

From its inception in the 1960s, the concept of society as *Information Society* has continued to engage the attention of researchers, commentators and governments. In a general sense, this presents a view of a society where social as well as economic change is driven through interactions with information embodied and represented in products, services, in media and in the structures and governance of society (Martin 1995). A recent United Nations document referred to the emergence of an Information Society that was transforming public and private spheres and was creating new social, political, economic and cultural opportunities throughout the world (UNDSF 2005) However, consensus on the nature and meaning of the concept has been hard to find. There remain differences between those who would view it as representing epochal-type change (ITU 2002) and perceive the emergence of different types of networked *informational societies* (Castells 2000), and those who maintain that there is no novel, post-industrial society, and that changes in occupational and industrial structures simply reflect continuity with the past (Webster 1995).

Moreover, for all those who proclaim the Information Society as providing the answer to social inequality, poverty and unemployment, there are others who would regard it as likely to widen the gap between information *haves* and *have-nots* and to maintain existing socio-economic

disparities (Sarker 2001). This divergence in perspective has led to calls for a unitary theory of the Information Society, one that balances the manifold elements of *informatisation* (Duff 2001). One's own view is that a single all-embracing theory is neither practicable nor desirable and that pluralism, for example in the emergence of different models of Information Society development is to be welcomed, These different models apply both at an urban level (Van der Meer and Van Winden 2003), and within regions and between them, including for example, models for East Asia, the United States and the European Union (Venturelli 2002).

Looking beyond Information Society programmes per se to include the broad range of initiatives in fields such as e-Government, e-business and e-Learning reflects the essential continuity in aims and content that exists between these programmes. At one level this continuity exists in respect of technology dissemination and uptake initiatives in e-Government and e-Business initiated by agencies of the United Nations, by the OECD and by many sovereign governments. At another level, the growing emphasis on Lifelong Education, on e-Learning and social inclusion in an economic and social context in which the major locus of value is in intangibles (Stiglitz 1999; APEC 2000; OECD 2001) reflects the continued importance of people as the ultimate targets of all such initiatives. Although this includes a view of people as human capital essential to a knowledge-based economy, it also recognises the need to address issues of disadvantage and inequality, issues that can be characterised in terms of the *Digital Divide*. The Digital Divide has been described in by the United Nations as a factor of exclusion from global exchange processes, restricting the development of intellectual capital, slowing down economic growth and dangerously increasing the lack of understanding between cultures and civilisations (UNDSF 2005). It exists both within and between countries and regions and as a result remedial Information Society programs have been launched at both European and at a global level. This paper looks briefly at some examples drawn from within the European Union and at the wider level of the United Nations and relevant agencies.

Information Society programs within the EU

Although there are country specific aspects to the range of current Information Society strategies, the search for concerted European action is reflected in a common core which includes quality of life and rights protection concerns, as well as those dealing with ICT access and digital disadvantage, with education and skills gaps and with infrastructure development (European Commission 2000). A useful basis for assessing progress towards such aspirations is to be found in two EU initiatives, eEurope 2002 and eEurope 2005. In the case of eEurope 2002, the objectives were: develop cheaper, faster and secure Internet access; invest in people and skills; and stimulate use of the Internet. (European Commission, 2002) Although several of these targets may have been relevant to issues such as social inclusion and removal of the Digital Divide, they nonetheless exuded a strongly techno-economic flavour.

The eEurope 2005 Action Plan sought to redress this perceived imbalance by referring to the importance both of the new competitive Knowledge Economy and an inclusive Information Society. Once again however, the vehicle chosen for such transformation was technological, with two key dimensions to the Action Plan being *Digital Inclusion* (giving every citizen access to the benefits of the new information and communication technologies) and *eInclusion* (meaning that key services must be available not only via personal computer but also via interactive digital television, third generation mobiles and cable networks. The broad intention was the creation of a digitally-literate and socially inclusive Europe, a true knowledge-based society, employing enabling technologies for use by highly skilled workers producing goods and services for digitally literate consumers. The expectation was that by ensuring the widespread availability of broadband networks and of access to electronic government, learning, health and business, there would be a focus on the users of these services, a focus characterised by e-inclusion and e-accessibility (European Commission 2002 b). These are in themselves not unreasonable

expectations and when added to the wider body of social legislation and associated strategies for the alleviation of poverty and disadvantage across the European Union they might be judged in a somewhat more positive light.

Moreover, genuine improvements have been demonstrated in improving levels of Internet access and in the promotion of eGovernment, eBusiness and ehealth services across the EU. This includes improvements in levels of eGovernment services to business at around 70% and to citizens of around 50%. This is clearly encouraging but experience requires that we always look behind the bare statistics. There are reasons for concern about the real levels of take up of such services and of the breakdown of numbers in terms of different social groups within society. Looked at in bare statistical terms, the inference might be that the Information Society already exists in Europe and in some respects and in certain regions it does. However, it remains a truism that for all its power and ubiquity, information and communications technology is simply an enabler of social and economic change. Furthermore, those people who for whatever reason find themselves at the margins of using and benefiting from these technologies are clearly not full members of society whatever its designation. Statistics such as those quoted here may in fact be more relevant to the development of an Information Technology-intensive Society than of an Information Society. They continue to exhibit the strong techno-economic characteristics of the first wave of Information Society programmes and in order to attain a genuine second wave dimension the role of social factors needs to be more prominent and explicit.

The EU has recently launched i2010l, a five-year strategy for the digital economy. Once again the emphasis is on efforts to boost this economy, including measures to create an open and competitive single market for information society and media services, and to increase EU investment in ICT research by 80%. However, a third priority is the promotion of an inclusive European Information Society by closing the gap between Information Society *haves and have nots* (European Commission, 2005). Even reasonable success in this regard would mark a significant step towards attainment of a genuine European Information Society.

World summit on the information society

With recognition of the positive potential of the revolution in information and communication technologies (ICTs) has come the realization that the vast majority of the world remains excluded from these possibilities. As access to information and knowledge is regarded as a prerequisite to achieving the Millennium Development Goals (MDGs) set by the United Nations, bridging the digital divide is essential to closing the development gap. A major response to this challenge was the launching of the World Summit on the Information Society (WSIS) which was held first in Geneva in 2003, and more recently in Tunis in October 2005.

The tenor of both the principles adopted and the actions proposed during the first summit strongly resembled those in the European programs, with emphasis on access to infrastructure and services, the application of ICTs to all walks of life and the attainment of internationally agreed development goals through effective regional and international cooperation (ITU 2003). Likewise the principles were reflected in priority targets which included: adaption of all primary and secondary school curricula to meet the challenges of an Information Society, ensuring that all of the world's population had access to television and radio services, and encouraging the development of content and the use of all world languages on the Internet (ITU 2003).

Again following a similar pattern to European initiatives, the second Summit placed a particular emphasis on narrowing the digital divide, and on the creation of an open, non-exclusive information society which would benefit all the people of the world. A specific objective was to give poorer nations the means to take advantage of the new information and communication technologies and in particular the Internet, for their economic and social development (ITU 2005).

Clearly, finding effective means of realising such aspirations clearly presents much more of a challenge to nations faced with social and human problems that are orders of magnitude greater than those in Europe. The following section looks briefly at aspects of the interplay between technology and development in emerging societies, but to the extent that the European experience is any guide, more than the application of ICTs will be needed to narrow the digital divide. Allowing for basic disparities between the North and the South, therefore, the digital divide continues to make serious demands on the imagination of planners and policy makers in both parts of the world.

ICTS, DEVELOPMENT AND THE DIGITAL DIVIDE

Until around the middle of the last century, development, to a large extent, meant closing the gap between industrialised and non-industrialised countries, with the latter striving to catch- up in industries that would today be regarded as belonging to the Old Economy. By the end of the 20th Century the focus had shifted from industries such as steel and shipbuilding to those engaged in the production and application of information and communication technologies (ICTs) and to fields like biotechnology. Viewed through a different lens this can now be seen as the development of interest in the Information Society. The mainstream view on the interplay between ICTs and development as enunciated a decade ago remains essentially positive. In the late 1990s, both the World Bank (1998) and the United Nations Development Program (1998) lauded the role of ICT in facilitating the acquisition and absorption of knowledge, not only to improve economic growth and performance but also to help advance sustainable human development. Even more positive has been a recent statement by the International Telecommunications Union to the effect that:

> *The digital revolution, fired by the engines of Information and Communication Technologies, has fundamentally changed the way people think, behave, communicate, work and earn their livelihood. It has forged new ways to create knowledge, educate people and disseminate information. It has restructured the way the world conducts economic and business practices, runs governments and engages politically. It has provided for the speedy delivery of humanitarian aid and healthcare, and a new vision for environmental protection. It has even created new avenues for entertainment and leisure (ITU 2005).*

Despite the perhaps over-optimistic tenor of this statement, there are signs of real improvement. For example, non-OECD countries now account for over 50% of fixed telephone lines and constitute 46% of the world's mobile subscribers. However, Internet subscribers in non-OECD countries were only one-third of all subscribers in 2003, and in broadband the disparity was worse, with only 17% of subscribers coming from non-OECD countries (OECD 2004).The problem is particularly acute in the lowest income countries with inadequate or non-existent telecommunications infrastructure, low Internet connectivity and little local content available to domestic users. This is particularly significant in that local content and services, especially in local languages, will be a key to increasing demand.

Social and market factors

However, explanation for the Digital Divide lies in more than just disparities in access to telecommunications and infrastructure. It includes a wide range of factors such as income, literacy and education, a lack of both general and ICT-specific skills, regulatory uncertainty and the absence of efficient market structures, institutions and competition. In the poorest countries, users often do not have the literacy or ICT skills sufficient to take advantage of even the *low* bandwidth text-based technologies that are available. (OECD 2004).Illiterate users require audio

and video technologies to take advantage of ICT, which partially explains the uptake of mobile in these countries. Moreover, telecommunications markets are complex and require a wide range of skills from users who access the network, engineers who maintain it and policy makers who regulate it.

Regulatory reform is seen as one element that can help to increase access to telecommunications and hence, reduce the Digital Divide. Evolving tele-communication markets need a strong, effective regulatory regime to ensure that markets function properly and services are delivered to consumers and businesses efficiently and fairly. One of the key elements of regulatory success is existence of an independent and separate regulator, outside the influence of both government policy and private industry interests. The presence of a strong regulator has greatly assisted the growth of mobile telephony in places such as Botswana and Cameroon (OECD 2004).

Markets with effective Internet competition often have higher penetration rates than their incomes suggest, for example Latvia and Estonia, where penetration rates are as high as in many of the richest economies. Latvia's Internet penetration rate of 40.6 Internet users per 100 inhabitants in 2003, was higher than Chinese Taipei, France, Switzerland, Italy and Belgium. Both Latvia and Estonia have very efficient ISP markets with large numbers of licences awarded (in 2004 Latvia had 195 such licences and Estonia 112) and subsequently a healthily competitive tele-communications regime. More generally, competition in mobile markets is responsible for an innovation that could serious impact on the communications element of the digital divide, that is, pre-paid telephony. Since users in developing economies often have little or no access to credit, introduction of pre-paid services has allowed such users to have mobile service. Pre-paid accounts now comprise 36% of all mobile accounts in the world (OECD 2004).

This said, a recent article in the Economist makes sober reading. It argued that merely plugging poor countries into the Internet was unlikely to help because the Digital Divide is a symptom of more important divides of income, development and literacy (Economist 2005). In order to derive meaningful benefit from ICTs, users need money to buy or access the technologies, the usage skills to employ them and the literacy skills to read the content. However, realistically the poor will not own ICTs or be able to use them in hands-on fashion to any significant degree in the foreseeable future (Heeks, 1999). Put differently, a computer is not much use if one has neither food nor electricity and cannot read (Economist 2005) As another source observed, the life of vulnerable populations cannot improve dramatically if suddenly they have a computer. But if their doctor is able to provide better health care thanks to a computer, then that is different (Boston Herald 2005).

In any case, finding the money for all such initiatives continues to be a critical challenge. The launch of a *Digital Solidarity Fund* first proposed at the 2003 World Summit on the Information Society had still not been implemented at the time of the second, with all the countries contributing to the fund being African, but for the exception of France. Opposition to involvement in the fund has been particularly strong from the European Union and Japan both leaders in Information Society development.

Funding mechanisms aside, there is clearly need for reflection on issues of *appropriateness*. This means putting money into programs that involve more than simple technology transfer and that make a more direct contribution to alleviating poverty. Technology transfer programs most usefully would include an element of ICT production, both hardware and software, rather than the simple consumption of applications developed elsewhere. Also key to appropriateness is attention to the local dimension in development projects be this provision for adequate local training, for native language websites and for the meaningful integration of ICT into local curricula (Heeks 2005a). The inclusion of this local dimension would go far towards addressing the

problem of *conditionality*, with conditions imposed on aid projects by outside agencies that are often inimical to the realities of life in the developing country. The ability to combine a knowledge of local conditions --- including knowledge of local political and social structures – with the learning derived from global experiences, could offer the best prospects for deriving policies which are both effective and engender broad-based support (Stiglitz 1999). Education in its various forms and in a variety of delivery modes is a factor of fundamental importance to success in all such attempts to reduce the digital divide and here too the local dimension is critical. The educational component in development programs also includes educating donors and recipients in the value and significance of knowledge in a global economy in which intangible resources play an increasingly major role.

THE NATURE OF KNOWLEDGE AND ITS ROLE IN DEVELOPMENT

Hitherto, analyses of cross-country differences in growth and development have not had much to say about knowledge. Arguably this can be attributed to the public goods aspect of knowledge, but it could also derive from too narrow an understanding of knowledge and its place in economic processes, including its role in growth towards closing the digital divide (Fagerburg 2005).

Knowledge remains an ambiguous and highly contextual construct, with obvious implications for knowledge transfers within and between the developed and developing worlds. This is likely to apply both in the case of explicit or codified knowledge available in print format or via the Internet, and of that tacit or implicit knowledge that surfaces at an interpersonal level. A particular case in point could be the tacit knowledge of expert advisors to developing countries. Not only can there be clear difficulties in the transmission and receipt of such knowledge (and/or information), but also some or all of it may not be relevant in any practical sense.

This is not to say that knowledge and information of truly general or global value is irrelevant to the needs of emerging countries. What does seem to be clear, however, is the importance of the local dimension. In emerging countries, as elsewhere, knowledge (and information) is required for myriad purposes including the provision of public services and for decision making in business. In the latter case, this can entail the need for information relating to *supply* (availability and sources of finance, labour, technology and raw materials), *demand* (including market opportunities and characteristics) and environmental information such as laws. Much of this information may come from informal sources or from sources that are dominated by commercial (overseas) interests or are often trivial in nature, including the World Wide Web. (Heeks, 1999) This may not always operate to the benefit of emerging countries but, there can be a role for ICTs in channelling local information from a variety of sources to government, donors and trading partners. It is important, however, to ensure as far as possible that such activities are not at the expense of organic information systems and indigenous knowledge – the systems and knowledge that arise from within poor communities (Heeks 1999). Experience has shown that even attempts to adopt best practices have required adaptation to take account of the specifics of place, people and time. This requires the active participation of people familiar with local institutions and environments in order both that knowledge is made locally available and that any adaptations are effected in a way that reaffirms local autonomy (Stiglitz 1999).

In the event, information and knowledge form only one element (albeit a very significant one) in a mix that includes problems of access to finance and to softer infrastructures of trust and community networks. In identifying the role of intangibles such as information and knowledge in tackling the problems of the Digital Divide, and indeed in addressing the criteria by which developing countries would be assessed in an Information Society context, this wider mix of variables is an essential prerequisite. There is also the critical issue of success or failure, of the

impact of respective variables or their absence, on progress towards bridging the Digital Divide. For this we need much better metrics for progress towards the Information Society.

THE MEASUREMENT DIMENSION: METRICS FOR THE INFORMATION SOCIETY

Exploration of the Information Society in a serious statistical sense has not progressed at the same pace as that for the knowledge-based economy. Progress of a sort emerged from the 2003 World Summit on the Information Society which advocated that all countries establish internationally comparable statistics on the Information Society. The Summit also established a *Partnership for the measurement of ICTs for Development*, resulting in the creation of a set of indicators that collectively would form a *Digital Opportunity Index* (DOI)**.** The classification of indicators included:

- **Affordability and coverage**: To participate in the Information Society, consumers must have access to affordable ICT services. The *percentage of the population covered by mobile cellular telephony* represents basic accessibility, while the two tariff indicators, *Internet access tariffs as a percentage of per capita incomes* and *Mobile cellular tariffs as a percentage of as a percentage of per capita income* reflect affordability.
- **Access path and device**: Includes the means for electronic communication, *main telephone lines per 100 inhabitants* and *mobile cellular subscribers per 100 inhabitants*. It also includes the equipment that provides the interface between the user and the network, represented in DOI by *computers per 100 inhabitants*.
- **Infrastructure**: For the DOI includes proxies that reflect advanced higher level information networks such as the Internet. Indicators include *Internet subscribers per 100 inhabitants* and *International Internet bandwidth per country*.
- **Quality**: Reflects a level of access that enables higher degrees of functionality. This provides support for services such as video streaming that can enhance desirable Information Society applications such as telemedicine, e-government and e-learning. The DOI indicator selected in this category was *Broadband subscribers per 100 inhabitants* (ITU 2005)

The subsequent application of the DOI to the circumstances of 40 economies that were geographically and economically diverse, revealed the existence of a huge Digital Divide, with Sweden the highest ranked , scoring 69% of the maximum, and India, the lowest, scoring 14%. (ITU 2005). The problem with the DOI, however, remains its heavily techno-centric nature.

Previous research conducted by the author including an extensive series of interviews in Europe revealed a similar techno-economic dimension to European Information Society programs (Martin and Byrne, 2003. There was a general consensus among those interviewed of the importance of supplementing existing metrics with indicators more likely to reflect issues of poverty and disadvantage and in a broader sense the Digital Divide. Across Europe this is now beginning to happen with programs targeted at women, the elderly and youth. Particularly encouraging in this recognition of the need for metrics that address issues of social cohesion and inclusion, is a focus on the value and likely role of knowledge in combating the Digital Divide. This is particularly the case in the Nordic countries, in Ireland and the United Kingdom. There is also acknowledgement not only of the importance of knowledge but of the need to find ways of managing it within and between societies, something which would seem to be critical to the future prospects for an Information Society.

Other positive signs in terms of metrics have been the creation by the OECD of macroeconomic indicators that include relative levels of national investments in knowledge, and microeconomic indicators for knowledge diffusion and human capital (Considine et al 2002). At the national level,

advances have also been made in countries like Australia, with the emergence of a framework for measuring the knowledge-based economy and society (ABS 2002). This framework while relatively narrow in scope, also contains a number of social elements including the impact, both positive and negative, of knowledge processes and the effects of knowledge use. In Australia there is also an annual *Information Economy Index*, a statistical compendium for the Information Economy comparing 12 countries over 23 indicators (NOIE 2002). All these Australian indices, however, retain a predominantly techno-economic character. Most recently, Eurostat, the Statistical Office of the European Communities organised a conference in Luxembourg during December 2005. Its specific aims included assessing the state-of-the-art in measurement of the knowledge economy, and identifying gaps in European statistical systems and finding possible solutions. The conference operated on the basis of three which included R & D and Innovation, the impact of ICT on the knowledge based society and perhaps less predictably Human Capital. This latter stream addressed not only issues of output and productivity but also the contribution of human capital to such social dimensions as active citizenship, improved health, the problems of *at risk* populations and reduction in crime (Eurostat 2005).

While such events are to be seen as positive both in helping to illuminate progress (or the lack of it) towards Information Societies and in providing means for better identification of the Digital Divide, they remain only a means to an end. The nature of this end and the complexity of the outcomes, mean that this involves various forms of Information Society and different manifestations of the Digital Divide both between and within countries and regions. Having the metrics will still not substitute for missing factors in an *information chain* which includes not only access to and the use of data and information, but also the economic resources, social resources and action resources to implement them (Heeks 2005, b). Even in developed nations (as the Smart Newtown project in Wellington, New Zealand demonstrated), there are additional challenges to do with persuading those perceived as *have nots* to actually benefit from opportunities to join the *haves* and in so doing help to close the Digital Divide (Crump and Murray 2003). At Newtown, a significant minority of the local population simply chose not to engage with the opportunities to participate in an online environment that held considerable promise in terms of digital literacy and personal development opportunities. The likely explanation for this lack of interest lay in a lack of the necessary educational and social skills with which to take advantage of opportunity. This appears to be a global problem and as such it mandates a major role for education in digital divide initiatives. Critically it implies the need for attention to curriculum content at both local and global levels, something which seems to have taken second place to delivery modes dominated by the potential of ICTs. In both the developed and the developing world, the challenges of bridging the Digital Divide and in the process of creating sustainable Information Societies remain as daunting as ever.

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