

Legal Regulation and uneven Global Digital Diffusion

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Abstract

The swift emergence of a global “information society” is changing the way people live, learn, work and relate. An explosion in the free flow of information and ideas has brought knowledge and its myriad applications to many millions of people, creating new choices and opportunities in some of the most vital realms of human endeavour.

Yet too many of the world's people remain untouched by this revolution. A “digital divide” threatens to exacerbate already-wide gaps between rich and poor, within and among countries. The stakes are high indeed. Timely access to news and information can promote trade, education, employment, health and wealth. One of the hallmarks of the information society – openness -- is a crucial ingredient of democracy and good governance. Information and knowledge are also at the heart of efforts to strengthen tolerance, mutual understanding and respect for diversity.

Kofi Annan (2003)

I don't have a Mercedes Benz and I want one, but I cannot afford it.

Michael Powell 2001 as cited in Cooper (2003).

The notion of a digital divide has become an accepted part of the information society scape as “one of the greatest impediments to development” (Wolfensohn, World Bank 2000). Yet the significance of the divide does not go unchallenged. For those such as Michael Powell, chairman of the US Federal Communications Commission, technology diffusion is a matter of

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the market working things out over the course of time with wealthy people always getting there first.

This paper argues firstly that while the notion of digital divide highlights critical problems for developing countries, this phenomenon is an aspect of fundamental global differences and inequalities. It suggests that the terminology of a bipolar digital divide between the digital haves and have-nots does not satisfactorily explain the complexity of differences between and among the developed, newly industrialising and developing countries. It therefore suggests the idea of “uneven global diffusion”.

Secondly, it suggests that dealing with the unevenness requires not merely ultimately ineffective ameliorative policies, but a holistic consideration of the legal, regulatory and other processes which lead to inequalities in global diffusion of digital technologies.

1 Introduction

The notion of a digital divide has become an accepted part of the information society scape as “one of the greatest impediments to development” (Wolfensohn, World Bank 2000, WSIS 2003). Yet the significance of the divide does not go unchallenged. As can be seen above, for those such as Michael Powell, chairman of the US Federal Communications Commission, technology diffusion is a matter of the market working things out over the course of time with wealthy people always getting there first.

This paper argues that while the notion of digital divide highlights critical problems for developing countries, the notion of the divide is not unproblematic. In particular, it ignores the different characteristics of digitalisation among western, newly industrialising and developing countries. It may be important to consider digital inequalities as an aspect of inequalities which are

intrinsic to current promotion of corporate globalism. It further suggests, that such promotion does not only merely construct an inequality of access to digital technology, but prevents those on the Other side of digital divides from creative participation and control of software and creative development – to becoming “Read-Only” cultures. In this context, the paper examines attempts to ameliorate the problem of digital divide and finally suggests that the global regulatory framework may itself be responsible for the growing prevalence of inequalities in digital diffusion.

Digital Divides?

Digital divide is generally defined in terms of differences in the access to the essential tools of the information society and to the infrastructure of the networked society or economy. These can be measured by surveys comparing access to computers, phones, cable, and other Internet-related technologies (eg Spectar 2000).

For example, while Africa had one million estimated internet users in 2000, the vast majority were in South Africa and the Maghreb states. The rest of Sub-Saharan Africa had less than 200,000 for a population as large as that of the United States which had 154 million users in 2000 (Norris 2001, 47). Furthermore Africa suffers the world's highest costs, critical skills shortages and unfortunate governance policies. The situation is a little better but still deplorable in other countries of the South. While there have been significant acceleration of mobile telephony and internet access in recent years, this does not affect the fundamentals (Mutual 2004). Perhaps the most important question to be asked is the chicken and egg one of the relationship of the digital divide to development. It is generally assumed that ameliorating or ending the digital divide will enhance development. A different way of looking at it is that the underlying issue is development – that when development occurs, digital divide issues may be resolved, and thus the primary issue is not how to increase the number of computers etc, but how to promote development (Mutula 2004).

In her comprehensive examination of the subject, Pippa Norris suggests a slightly more complex picture:

The digital divide is understood as a multidimensional phenomenon encompassing three distinct aspects. The global divide refers to the divergence of internet access between industrialised and developing societies. The social divide concerns the gap between information rich and information poor in each nation. And finally within the online community, the democratic divide signifies the difference between those who do, and do not, use the panoply of digital resources to engage, mobilize, and participate in public life (Norris 2001, p4).

Her main findings are that:

- The global divide in access to digital technologies is substantial and that it has been growing during the first decade of the internet age. The root cause is lack of economic development. However, it is not a simple distinction between western developed countries and the rest. Newly industrialising countries such as Taiwan and Singapore have shown a remarkable acceleration in the use of information technology (West 2004, Liu 2004). There is also some unevenness in the use of technology in which some developing countries such as South Africa, India and Brazil and transitional economies such as Estonia perform better than some more developed countries.
- Similar social divides exist within countries, including within developed countries. The root cause is once again socio-economic stratification and it is not necessarily true that the gap will automatically close as the internet becomes more ubiquitous.
- The internet is likely to be used to maintain the domination of the existing governance forces, and it is likely that those currently disengaged from governance will not engage because of e-government. However, there is also a possibility that e-governance, by promoting transparency and reducing the costs of political engagement for the committed, will enable minor parties,

smaller groups and fringe movement activists to promote shifts in the balance of power.

Norris suggests the necessity to look at wider issues than mere technology access. Manuel Castells, who has been inspired by the rise of information technology in his definition of network society, has nevertheless placed the divide in the context of social networks:

In the information age, the critical organisational form is networking. The most critical distinction in this organisational logic is to be or not to be – in the network. Be in the network, and you can share and, over time, increase your chances. Be out of the network, or become switched off, and your chances vanish since everything that counts is organised around a world wide web of interacting networks (Castells 1998).

The stark absolutism of exclusion may need to be corrected, but the network provides a compelling analogy.

Similarly the World Bank group sees information technology in terms of its social connectivities, relying on theories of Bourdieu and Putnam to suggest a key link between information technology and social capital:

Information technology directly lessens the costs associated with imperfect information. In this way, information technology has the potential to increase social capital – and in particular bridging social capital which connects actors to resources, relationships and information beyond their immediate environment (World Bank 2002).

It is in this context that Warschauer challenges the technology determined concepts of digital divide as unsatisfactory even when they have been stretched in the manner proposed by Norris (Warschauer 2002, 2002a). He suggests two reasons for this.

Firstly, that ICT is about much more than providing internet and computer connections. This is because access to ICT is:

(E)mbedded in a complex array of factors encompassing physical, digital, human and social relationships. Content and language, literacy and education, and community and institutional structures must all be taken into account if meaningful access to new technologies is to be provided.

Secondly, the notion of a 'divide' assumes a bi-polar societal split of the haves and the have-nots at global and national levels. However, the situation is much more complicated because of the existence of a continuum which involves wide varieties of quantities and qualities of access among all countries and peoples. Warschauer contrasts the gradation between "the UCLA professor with high speed connection from her office, the Seoul student who occasionally uses a cybercafe and the rural activist in Indonesia who has no computer or phone line but whose colleagues in her women's group download and print out information to her." He therefore suggests that social inclusion, or the EU's e-inclusion, is a more holistic way of approaching the problems now defined as the digital divide:

A framework of technology for social inclusion allows us to re-orient the focus from that of gaps to be overcome by provision of equipment to that of social development to be enhanced through the effective integration of ICT into communities and institutions. This kind of integration can only be achieved by attention to the wide range of physical, digital, human, and social resources that meaningful access to ICT entails (Warschauer 2002).

While Warschauer is holistic in considering how technology may be used to solve specific social and economic problems, he ignores a key dimension. In my opinion, it may be as important to study how current patterns of diffusion occur, to what extent they solve and to what extent they create social and economic problems. The spread of corporate global networks provides one dimension for

considering this diffusion. Communities of access are interconnected through global corporate and other links. Thus, to describe the developing country subsidiary of a multinational law firm which has satellite based access to all the resources of the parent firm as an example of successful digitalisation for the country ignores the fact that the fundamental relationship for the subsidiary is not to the country but to the firm of which it is a tentacle or weblink. For example Champlin and Olson suggest in relation to programmers employed in Silicon Valley and Bangalore: [i]ndeed, two software professionals, one in Boston and one in Bangalore may share the same job in the same firm. While one sleeps, the other works. As one author observes, 'In cyberspace, Boston and Bangalore are practically the same place' (Champlin and Olson 1999).

Similarly the Indonesian activists who are linked to a global NGO network are part of a global digitalisation process. To see these as examples of the division between haves and have-nots within one country provides only a partial view and does not provide an effective analysis of the electronic reshaping of the world.

To take another example, digital diffusion is taking place at markedly different rates for different aspects of technology. While North America led the way, followed by Europe initially in access to digital technology and the internet, more recently Newly Industrialising East Asian countries have accelerated the access and quality of technology provision. Internet access has grown exponentially in all East Asian jurisdictions. (Yoon 2004) For example Taiwan has transformed itself into a world leader in ICT production for export and also promoted effective government strategies, research and investment in e-Taiwan, with a budget of over US\$1 billion. Taiwan has been listed in the most recent report on E-Government as ahead of the US in the provision of qualitative E-Government (West 2004, Liu 2004). On the other hand, Africa shows the greatest acceleration in mobile telephony,

but from a very low base. Yet, there are three areas where the US continues to dominate which may be crucial. The US is the dominant website host. Secondly, the continued domination of English as the language of the internet continues to discriminate in qualitative terms against those peoples for whom English is not an easy language for reading and writing. In spite of the recent rise of Chinese websites, and the rise in English use among Chinese speakers, this phenomenon will continue to remain a problem at a global level (Yoon 2004). Thirdly, there is the US and Western domination of information technology patents including the more recent and controversial rise of business methods patents in e-commerce. A key consequence of these intellectual property developments is to restrain creativity and innovation in technology and e-business development for the developing and newly industrialising countries.

Thus, a further dimension to technology diffusion is provided by the notion of free culture:

A free culture supports and protects creators and innovators. It does this directly by granting intellectual property rights. But it does this indirectly by limiting the reach of those rights, to guarantee that follow-on creators and innovators remain as free as possible from the control of the past. ...The opposite of a free culture is permission culture – a culture in which creators get to create only with the permission of the powerful, or of creators from the past. (Lessig 2004 xiv)

In the context of global digital divides, a pervasive free culture must also combine with a culture which ensures that the scope for creativity and innovation is given to those who are currently at the other end of the digital divide. As Elizabeth Daley suggests:

From my perspective, probably the most important digital divide is not access to a box. It's the ability to be empowered with the language that the box works in. Otherwise only a very few people

can write with this language, and all the rest of us are reduced to being read-only. (Elizabeth Daley cited by Lessig 2004, 37).

Thus the idea of digital divide goes beyond access to empowerment, contribution to and share in the control of the digital box of tricks. We need to explore digital diffusion in all its complexities. The world is not divided starkly into digital haves and have-nots.

This is where the role of legal regulatory frameworks becomes significant.

2 Attempts to bridge the divide

The issue of an 'information' divide has been a matter for consideration since the 1970's. Developing countries argued for New World Information and Communications Order (NWICO) through UNESCO and other UN agencies as an aspect of the New International Economic Order. While the main thrust of NWICO was in terms of the news media, telecommunications and information technologies were also involved with the hope expressed that international organizations would offer assistance in areas such as "technology transfers, aid for higher education in communications science within Third World countries, tariff reductions for communications flowing from developing countries, and research and development of new, inexpensive, and more user- friendly technology". The New International Economic Order movement attempted to combine the notions of global equity and national sovereignty. However, western governments, particularly the US, supported free market based flows of information in which they had a dominant position and NWICO had very little impact (Spectar 2000).

The new initiatives on the Digital Divide take place in a very different environment of free market based globalisation. The attempt to create the Global Information Infrastructure (GII) and a Global Information Society (GIS) linking the world have been

largely dominated by the concerns to develop e-commerce (Yarbrough 2000). They take place in the context of a regulatory environment which emphasises competition and economic liberalisation.

Attempts to bridge the divide have involved a variety of international organisations such as the UN, IFIs, OECD, the G8, the EU and other donor countries. Key developments have been the G8 Summit at Kyushu-Okinawa in 2000 which adopted the Charter on the Global Information Society and agreed to establish a Digital Opportunity Task-force (DOT) and the recent World Summit on Information Society (WSIS). The brief of the DOT report was:

[to] integrate efforts to bridge the digital divide with the main aim of facilitating discussions with developing countries, international organisations and other stakeholders to promote international co-operation with a view to fostering policy, regulatory and network readiness; improving connectivity, increasing access and lowering cost; building human capacity; and encouraging participation in global e-commerce (DOT Report 2001).

The DOT involved 43 members including representatives from G8, Developing Countries, International Organisations, Global Networks, Private Sector and NGO's. While this list appears broadly representative, the dominant groups in global networks, private sectors and NGOs involved representatives from the G8 countries. The DOT Report with its Genoa Plan of Action suggested that appropriate application of ICT can make a substantial direct or indirect contribution to every one of the International Development Goals of the UN's Millenium Declaration:

ICT cannot of course act as a panacea for all development problems, but by dramatically improving communication and exchange of information, they can create powerful social and

economic networks, which in turn provide the basis for major advances in development.

The Report suggested a number of initiatives including:

- National eStrategies: These would be encouraged and linked to national and international development goals. However, the main thrust would be a “pro-competitive regulatory framework” including economic liberalisation to foster local and foreign entrepreneurs.
- Participation in international regulatory efforts: Developing countries would be supported to participate in international regulatory efforts including global self-regulation such as for internet domain names.
- Improving Connectivity, Increasing Access and Lowering Costs: There would be emphasis in targeted interventions on community based access points. Backbone access would be promoted through the private sector, but there would be support for joint stakeholder initiatives such as the African Partnership and the Africa Connection.
- Building Human Capacity –There would be targeted training, education, knowledge creation and sharing initiatives, including in the use of ICT for health including HIV/AIDS.
- National and International Effort to Support Local Content and Applications Creation: This would include promoting local software communities and developing country relevant software and content encouraging both cheap commercial and non-commercial applications.
- Prioritise ICT in G8 and Other Development Assistance Policies and Programmes and Enhance Coordination of Multilateral Initiatives: Development policies including of the G8 countries as well as of the IFIs and UNDP would prioritise ICT but in ways which integrated ICT consideration as part of wider programmes in areas such as health, education and poverty relief.

There is an interesting mix of strategies in the DOT Report. But they do not provide for the substantial transfer of resources to developing countries necessary to make a real difference to technology diffusion. While the main thrust of the proposals is on National Strategies based on a pro-competitive regulatory framework and economic liberalisation to promote local and foreign entrepreneurs, there seems to be a recognition that promotion of local content and applications might not be easily enabled through this strategy. Therefore there are exhortations to encourage both open source and commercial communities to make software available to developing countries and to localise software applications; for free access to government information; for the support of organisations making information available on a non-commercial basis and for commercial publishers to develop business models which would enable cheap access to information. In principle, the DOT Report adheres to the orthodoxy of global market competition as the best solution to the problem.

This orthodoxy is especially apparent in developed country policies in relation to national digital divides. The OECD Report on the Digital Divide in 2001 considered that the main basis for promoting an information society had to be the creation of a regulatory environment which reduced barriers to market entry and fostered competition. For example, while an earlier generation of telecommunications regulation led by the ITU has provided Universal Service Obligations for telephony, there is strong resistance to extending such obligations to encompass broadband internet. The Australian Information Economic Advisory Council has argued:

The delivery of new services on a highly cross-subsidised, uniform price basis reduces or eliminates the prospect of competitive entry and discourages the incumbent from further investment and service improvement in non-profitable or less profitable areas of the market (Australian Information Economy Advisory Council 1999, p xi).

The EU Universal Service Directive does not extend the concept of universal service to broadband internet, but leaves it to member states to determine. This does not prohibit a Member State from taking its own initiative to make broadband services publicly available in its own territory. But in doing so, no compensation mechanism involving specific undertakings, operators or service providers may be imposed. Instead any support has to come out of general revenue. In the circumstances, only the Scandinavian countries which are the most advanced internet users have provided funding support for backbone development which would provide universal broadband access. On the other hand, of the OECD countries, Korea has considered it important to provide state funding for backbone development as have other South East Asian countries with 'Development State' policies such as Malaysia, Singapore and Taiwan (Yoon 2004, Liu 2004).

For the poorer countries, the advantage of the DOT Report and similar initiatives is the development of a co-ordinated agenda. UNDP, IMF, World Bank and other donors have provided support for telecommunications development and project funding for specific ICT projects. While these are significant and have increasingly involved funding which goes beyond provision of equipment to the provision of digital information gateways and interesting initiatives such as the Grameen rural mobile phone businesses, rural e-communication centres and support for school teachers, the funding is insufficient to do more than pilot projects. Sustainability of many tele- and ICT centre type programmes is a continuing concern (Warschauer 2003). There is also multi-sector funding for the promotion of dot-com enterprises. A major emphasis is on regulatory reform to promote economic liberalisation.

The World Summit on Information Society (WSIS) is intended to provide a coherent global strategy as a culmination of these developments. The Declaration of Principles and Plan of Action

(WSIS 2003) also affirm the main principles of the DOT Report but seek a balance between the role of the market and the state suggesting:

Policies that create a favourable climate for stability, predictability and fair competition at all levels should be developed and implemented in a manner that not only attracts more private investment for ICT ...but also enables universal service obligations to be met in areas where traditional market conditions fail to work (para 23).

The Declaration of Principles proposes facilitation of access to public domain information. However, it is noteworthy that crucial decisions as to Digital Fund and Internet Governance were shelved to be dealt with by the 2005 Summit as a result of Western and particularly US resistance.

On the whole, while Wolfensohn and Annan see the consequences of the digital deprivation to be key to future development and poverty alleviation, there is realisation that insufficient funding is available to make a substantial difference. Innovative initiatives such as the UN Secretary General's Digital Volunteer force constitute little more than ameliorative devices.

3 Regulatory Construction of Global Technology Diffusion

Thus the underlying strategy of technology diffusion is the global information infrastructure GII supporting a global information society GIS. This is based on the development of free market reforms with only minor obeisance to notions of amelioration of the digital divide. In this section, I suggest that wider policies on international trade promote a system of information technology diffusion which promotes corporate globalism on terms

advantageous to global corporations based in developed countries.

The WTO has had a major impact in the development of this approach. Thus, the Basic Telecommunications Agreement annexed to GATS provided a key regulatory thrust for dismantling the previous global telecoms structures which were dominated by state telecoms monopolies. Henceforth, the State's role is to regulate the market in the interest of transparent and fair competition (Braithwaite and Drahos 2000, 336). Some obeisance is made in the Agreement towards the special needs of developing countries which can place under their accession schedules:

[r]easonable conditions on access to and use of public telecommunications..to strengthen its domestic telecommunications infrastructure and service capacity and to increase its participation in international trade in telecommunications services.

However, international agencies such as IMF and World Bank have promoted full liberalisation of the telecoms sector in developing countries as part of structural adjustment and now Poverty Reduction Programmes (PRSP & PRGF).

Similarly developed member countries are exhorted under the Telecommunications Agreement Article 6 to assist the efforts of international agencies such as the ITU, UNDP and World Bank in improving the telecommunications infrastructure in developing countries.

There have been significant recent improvements in telecoms coverage in developing countries. The most important motor for change has been the rise of mobile telephony which avoids the infrastructure costs of land lines. These improvements are widely attributed to privatisation. However, this is not entirely clear.

There may be other contributory factors such as technology, competition and state regulation (Wallsten 2001, Warschauer 2003). For example, China has seen a tremendous growth of telecoms and internet access largely based on state owned enterprises (UNDP 2000, Ke 2004). The OECD Report on Information and Communications Technologies and Rural Development 2001 acknowledges:

Deregulation and competition between telecommunications operators are

not sufficient, on the basis of market based decisions, to permit the same level of ICT service (accessibility, speed, tariffs) in rural areas as in urban ones. This is particularly the case for broadband infrastructure and services, new applications that are the basis of the networked economy and the pre-condition for full implementation of ICT and e-commerce.

Rural areas are at a disadvantage because:

- Local businesses will not have the same cost efficient opportunities to fully use ICT, in particular to access other markets.

- Inward investment will not be attracted to the area.

- Consumers will not have the same possibilities to use ICT as their urban

counterparts. ICT offer very useful educational and public service applications that can remedy distance and remoteness.

- The issues of telecommunications infrastructure and services in rural areas

should thus be given proper attention, to avoid the risk of a territorial “digital divide” (85).

These issues apply even more to the digital divide between developed and developing countries.

The Information Technology Agreement provides for the abolition of all customs and other duties on information technology goods. The agreement was entered into only between a minority of countries but the underlying principle was that

technology diffusion required full competition with minimum of import duties. This would result in overall reduction in the costs of the Global Information Society. Yet, few developing countries other than NICs subscribed to this agreement, because the dilemma for most developing countries is that they are largely technology importing countries often with precarious balance of payments. Customs and excise duties often represent an important revenue resource and secondly eliminating tariff barriers for expensive products might exacerbate balance of payments difficulties. This is not an issue for NICs such as Taiwan, Singapore and Malaysia which export high technology products (Yoon 2004). It is again more complicated for countries such as India which have historically attempted to develop their own import substitutes. The advent of competition can either kill off their home-grown feather-bedded industries or lead to sufficient reform for a thorough restructuring. The economic argument is that the social and economic costs of discontinuing uneconomic or poor quality local production of goods such as PCs have to be set off against the reduced costs and value throughout the information economy of cheaper and or more efficient imports (James 1999). However, the assumption that the technology needs are identical worldwide may threaten appropriate technology initiatives such as India's Simputer.

A key thrust of the GII and GIS is e-commerce. A significant decision was taken on e-commerce by the WTO in providing temporarily in 1998 that e-commerce transmissions should be free of customs duties. This was continued at Doha and a WTO work programme intends to consider aspects of e-commerce including implications for developing countries. The UN Conference on Trade and Development (UNCTAD) Report (2002) on e-Commerce and Developing Countries places considerable emphasis on liberalisation of regulation, for example through intellectual property protection.

Some argue that e-commerce provides possibilities for developing countries to leapfrog by not having to undergo the costs of earlier technology (Davison 2001). Examples are occasionally cited of positive aspects of e-commerce for developing countries such as the purchase by a German woman of a bicycle from Sri Lanka on the internet. A more important phenomenon is the growing development of trade in 'back office' services such as data entry and call centres, which can make a strong contribution to export trade of high skilled developing countries such as India (Panagariya 2000). On the other hand, significant participation in e-commerce is only possible if there is a sufficient infrastructure to enable e-commerce. This includes the availability at low cost of hardware and software, a suitable low cost communications system for link to internet including a reliable power supply and electronic transactions systems to enable payments by credit cards and foreign exchange transactions and an appropriate level of personnel to operate the system. In this respect, only the newly industrialising countries, which have the capacity to invest in infrastructure, are capable of taking reasonable advantage of the potential of e-commerce. Yet, as we shall see below in relation to business methods patents, the thrust of global e-commerce law apparently supported by the WTO Trade Related Intellectual Property (TRIPS) Agreement promotes restrictive practices by permitting patenting of e-business methods which go beyond traditional intellectual property rights (Accascina et al 2004). The other developing countries, particularly the poor ones are likely to suffer even greater imbalances in ecommerce trade in the absence of significant funding for infrastructure development.

A second issue is whether the type of e-commerce services in which developing countries have a comparative advantage are provided access by developed countries in their schedules under GATS. Until recently liberalisation commitments in relation to services have largely been in areas where developed countries are exporters and developing countries importers (Panagariya 2000).

In principle, the reformed regulatory regime may not enable the theoretical advantages of e-commerce to be obtained by all but a small group of developing countries. At the same time, it may expose their markets to services from developed countries creating difficulties for customs revenue and balance of payments as well as leading to losses and decline of their own service sectors.

The consequences of the Agreement on Trade Related Intellectual Property Rights (TRIPS) raise even deeper problems about technology transfer. Hardware, Software and Business Methods Patents and Software Information Copyright have become crucial and new forms of intellectual property in recent years. The Agreement is an apparently protectionist measure entrenching intellectual property rights, which are claimed overwhelmingly by TNCs, and thus denying access to technological knowledge and preventing innovation, especially by small players and by developing countries. However, TRIPS was justified on the grounds that it sought a balance between the “the short-term interests in maximizing access and the long-term interests in promoting creativity and innovation” (WTO 2002). Under Art. 7, its objectives are to promote technological innovation, transfer and dissemination, the mutual advantage of producers and users, social and economic welfare and a balance between rights and obligations. In the absence of IP protection, corporations would be unwilling to trade or transfer technology (Kelsey 1999, 263). As Trebilcock and Howse (1999) indicate, neo-classical trade theory does not support the case for a global increase in welfare as a consequence of strong IP protection. This is because for some countries the comparative advantage may lie in innovation and for others in imitation and adaptation of others’ innovations. In the circumstances, strong IP protection will advantage the innovators but disadvantage the imitators both in developed and developing countries. Furthermore, stronger IPR will have a tendency to raise prices of goods and services using those IPRs. Overall they suggest, relying on Maskus (1991), that global welfare would suffer

through increased IP protection (Trebilcock and Howse 1999). In the circumstances, US insistence on stronger IP protection was not so much calculated to promote global welfare but to protect the interests of major US firms, which were responsible, in collaboration with the USTR and the OECD, for developing and promoting TRIPS (Kelsey 1999, 263). The beneficial effects for US firms and economy for TRIPS and other developments in IPR can be observed in the positive correlation between the enactment of IPR protection in countries and the increase in US exports to those countries (Correa 2000, 6).

In an era promoting corporate globalism, arguments about intellectual property protection go beyond simple issues of protection of innovation. The protection of intellectual property is generally seen to be about the trade-off between promoting innovation through remuneration of innovative development and promoting the spread of knowledge, research and development as a public good (Braga 1995).

In essence TRIPS involves an attempt at global harmonisation of IPR in ways which make it difficult for any players other than global corporations to participate in effective use of innovations. They have the resources and effort required for obtaining patents on a world wide basis. They utilise practices within IPR laws which ensure that the limited monopoly provided by IPR is extended through defensive patenting; new patents based on slight changes in the patented product; complex combinations of a range of IPRs in a single innovative development in ways which make it difficult for competitors and the provision of insufficient information to enable reverse engineering. On the one hand, there are the advantages of global corporations as the most dynamic force in international economy. On the other is a new enclosure movement in which global commons in knowledge and innovative development is effectively monopolised by global corporations (Lessig 2002, p141, 2004).

A possible consequence for developing countries is that global corporations and small firms will spread research and development to them as part of their global operations in the new global division of labour, as is the case with the use of programmers in India and other countries (James 1999, Coward 2003). However, the extent to which there will be a real shift in R&D is not clear. The involvement of developing countries in R and D activities until now has largely been in low level activities such as data input and low level programming (James 1999, Correa 2000, 152, Coward 2003). It is possible that these may become part of technology led leapfrogging take-offs in some developing countries. Or such activities may possibly remain part of developmental ghettos of global corporate networks (Carmel 2002, Davison 2001, Yoon 2004a).

The reliance on markets, effectively global corporate oligopolies, has other implications for developing countries. The expansion of ICTs in these countries depends on the development of appropriate technologies. As Warschauer (2003) suggests: Market-oriented systems reward and protect those that are developing products and services for the already existing market, especially the business sector and middle- and upper-middle-class consumers. In order to counteract this tendency, other kinds of support and incentives, most likely from governments, will be required to nurture technologies that meet the needs of low-income populations who only represent potential rather than existing markets.

Civil Society Organisations at the WSIS raised the implications of TRIPS and other WTO Conventions as a key issue. However, this was strongly resisted by the US and other Western Governments on the basis that such issues were best dealt with at WTO. A likely consequence is that developing countries are denied the path to development through imitative adaptation of technologies which

enabled Japanese and South Korean acceleration of development. As the world of innovation is cast in the multinational mould, all forms of innovative activity, such as small firm and alternative technology based development are undermined or taken over and substituted by the new multinational culture (Correa 2000, 36).

More significantly for developing countries and all those on the other side of the digital divide, the costs of obtaining or developing ICT result in inequitable and inappropriate participation in the diffusion and development of information technology.

It is in this context that the ideas of free culture become relevant. The first notion of free culture is opposition to the domination of 'permission culture' through intellectual property and other laws. Lessig's distinction between legitimate protection of intellectual property and that in which the dead hand of property owners stifles further innovation and creativity is a sound one. Among other things this distinguishes between creativity and piracy. Nevertheless, for developing countries in which there is overwhelming imbalance between the controllers and users, Lessig's approach would constrain innovation and creativity. This is because there is a much more complex relationship between 'legal' and 'extra-legal' in countries such as India than can be encapsulated by simple notions of piracy derived from Western legal orders. Thus Lawrence Liang (2004) suggests in a study of Indian practice in the music industry that the concept of 'porous legality' provides a better framework for understanding the intense creativity of subaltern media and information technology in contemporary India.

Two other ways in which notions of 'free culture' are being promoted are through the Open Source and Free software movements and their equivalent the Open Content movement. The open source software movement can be considered a license agreement, a philosophy, or a way of doing things. Its philosophy, which harks back to the original principles of software

development, and which has had a renaissance with the phenomenal success of Linux is that software should be freely available for modification, use and redistribution with certain restrictions. Open Content is the content equivalent of Open Source and has various tributaries such as the CopyLeft and Free Law movements. As a philosophy, open content refers to the principle that content should be freely reusable so as to make knowledge available as common knowledge for the common good (see Newmarch, 2001). A key fundamental of open content licensing is that any object is freely available for modification, use, and redistribution with certain restrictions (Keats 2003). The Free Law movement ensures that primary legal materials are a commons right and should be available free at source.

As Lawrence Liang (forthcoming 2004) suggests

The open software and open content movement is often read in a narrow technical manner as though the entire question were a legal one, in terms of the validity of the license, the legal innovation etc., forgetting often that beneath the license lies newer modes of organizing modes of production and distribution of knowledge and creativity.... I can think of no metaphor which captures the limitation of such a task, than the metaphor of mapping. The map is always an imprecise distortion, in the same manner that the map does not reveal the hidden secrets of the city, its surprises or its anxieties, the license is not the story of cultural production. The license can and will only remain as an imprecise attempt to capture the complexity of what is actually happening at the level of the new principles through which people are willing to engage in the act of collaborating, creating and sharing.

This principle is taken somewhat further by Dan Hunter (2004) who endows the Open and Free Software Movements with elements of historic class struggle in a new funky label of Marxism-Lessigism. In my opinion, the weakness of the Lessig argument is in its adherence to an abstract what is good for global innovation within an overall market framework. Ultimately the case for the

realignment of uneven digital diffusion has to take fundamental account of structural unevenness in global power systems.

4 Conclusions

This paper has suggested that concepts of digital divide can best be explained within the overall context of networks and relationships which connect with information technology and such key contexts are provided by the processes of global technology diffusion. Policies which promote amelioration of the divide will not be effective by themselves without consideration of the underlying dynamics of global technology diffusion. In this respect, the regulatory environment which promotes unequal relationships enables corporate globalism to take advantage of the same unequal relationships. For some countries, and more significantly specific individuals and groups within them, digital opportunities may be opened up by corporate globalism. Newly Industrialising Economies such as Taiwan are in a particularly advantageous position and yet may suffer relatively from the software dominance of the West. Countries which have the right circumstances such as India and Brazil may also invest their way into fuller participation in global digitalisation. India has recently announced a \$3.7 billion digital investment programme over the next 4 years. However, such state aid initiatives are likely to be threatened in the future as WTO prescriptions such as TRIMS bite for developing countries. Furthermore the possible acceleration in technology development in some countries will not necessarily result in fundamental national or global equity. Yet, global digital diffusion also provides opportunities for minority and resistant voices because greater transparency, increased communication and reduced IT costs can empower committed activists (Norris 2001). The proper promotion of equity therefore requires a concerted push against 'permission culture' particularly in its regulatory aspects. Such a push requires loosening the boundaries of the rules which

construct the domination in favour of corporate globalism. In my opinion, this has to go beyond a balance between intellectual property rights and creative innovation in favour of the creative commons. There is need to address the fundamental structural issues of power and these can only be resolved by resort to concepts of human rights and social justice.

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