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Intellectual Property and the Digital Divide

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Intellectual Property and the Digital Divide[1]

ABSTRACT

Over the last three decades, the role of intellectual property (IP) law in the economy, trade and business as well as in social life has grown enormously both within industrial nations and on the international level. While the scope of IP has expanded in all kinds of directions, to cover all manners of ideas and concepts, at the same time, IP has become fragmented and incoherent. The resulting uncertainty and confusion about what exactly constitutes IP and the extent to which society can afford to grant and protect them has begun to impact negatively on science and innovation, economies and cultures, across the globe. The professionals, legislators and policy makers have already been repeatedly called upon to revisit this problem (the latest in the UK being the Adelphi Charter). An examination of how IP might impinge upon the digital divide addresses the very same problem, albeit from a different angle.

This article is organised in four sections. Section 1 defines the concept of 'digital divide'. Section 2 outlines whether and how IP law has coped with the digital revolution. Section 3 then reviews the perspectives of the relevant stakeholders in stemming the digital divide: the OECD and the WSIS; global corporations such as Microsoft; NGOs and the "Friends of The Intellectual Commons". Section 4 brings together, and critically assesses, the various strands of views on possible way(s) of bridging the digital divide in terms of current IP law and policy and in light of any emerging trends. The article concludes that, while IP does contribute to the digital divide, some of its critics fail to recognise the paramount role of the economic and social environment within which it has developed; consequently, any proposals for overthrowing IP leaving that environment intact will remain fanciful.

Keywords: Intellectual Property, Digital Divide, Information Society

1. Introduction

The literature in social sciences relating to the information and communication technologies (ICT) addresses aspects of the problem of digital divide. Unfortunately, very little has been written on the legal dimension of the same problem. Even then, the focus has been on policy and regulatory issues surrounding access to ICTs (Gonzalez, 2005a, p. 73). Far less significance has been given to the problem in the intellectual property (IP) literature, though some of the debate on the continuing expansion of IP indirectly touches on it.

This article aims to examine how IP might contribute towards the digital divide and the possible ways and means of reversing its negative impact. As already mentioned, the ongoing debate on the further expansion of IP to cover ('properties') every imaginable form of information and calls to curtail or revise such expansion indirectly link with the urge to lessen whatever impact IP might have on the digital divide.

[1] This article was originally presented at the Centre for Globalisation workshop on the "Global Digital Divide: A legal postscript to the World Summit on Information Society", held at Scarman House, University of Warwick, 17-18 September 2007

While the literature critiquing IP expansion towards the end of the 20th century has largely developed in the context of concerns for the continuity of creativity and innovation as well as cultural progress in the industrially advanced societies, this article seeks to scrutinise the narrower problem of how IP might have impinged on the digital divide. This can be achieved by moving beyond the general denunciation of current IP as somehow outdated and as a mere stranglehold over innovation and human progress; instead, the article explores the nature of IP and the manner of its evolution over the centuries within the framework of the demands and expectations of economies and societies, whether industrial or non-industrial. The benefits of such an approach are that the critique of the system will be grounded in the history, economics and technologies of countries and nations that gave rise to it as well as that any proposals for validating, reforming or overthrowing the system will not appear whimsical or utopian.

The article is organised in four sections. Section 1 defines the concept of 'digital divide'. Section 2 outlines whether and how IP law has coped with the digital revolution. Section 3 then reviews the perspectives of the relevant stakeholders in stemming the digital divide: the OECD and the WSIS; global corporations such as Microsoft; NGOs and the "Friends of The Intellectual Commons". Section 4 brings together, and critically assesses, the various strands of views on possible way(s) of bridging the digital divide in terms of current IP law and policy and in light of any emerging trends. The article concludes that, while IP does contribute to the digital divide, some of its critics fail to recognise the paramount role of the economic and social environment within which it has developed; consequently, any proposals for overthrowing IP leaving that environment intact will remain fanciful.

2. The 'Digital Divide' Defined

The term 'digital divide' has become popular shorthand to refer to any perceived inequality in the use of information and communication technologies (ICT); however, no clear consensus has emerged in defining it (Ibid). More often, the term is used broadly to denote the gap between the technology haves and have-nots as a whole. One commentator refers to the "unequal patters of development" arising from the unequal access to the "new world of instant communications and infinite information on demand" (Alexander, 1996, p.195). He argues, "In a world governed by information, exclusion from information is as devastating as exclusion from land in an agricultural age" (Ibid). Occasionally, there is tendency to view the concept as equivalent to the gap in information; in other words, not just in access to facilities alone.

A report prepared for UNESCO, by contrast, views gaps in the level of ICT introduced by countries, "between 'ICT-haves' and 'have-nots'" as a measure of 'the digital divide' (Sciadas, 2003, p.1); indeed, it used a "*Digital Divide Index* (DDI)" to "track the diffusion and uptake of ICTs over time and across economies and regions" (Ibid, p.iii). Norris takes the 'digital divide' to mean "a multidimensional phenomenon encompassing three distinct aspects": gaps between the industrial and developing countries ("global divide"), the information rich and poor within each nation ("social divide") and "the difference between those who do and do not, use the panoply of

digital resources to engage, mobilize and participate in public life" ("democratic divide") (Norris, 2001, p.4).

Paré (2005, p.88) disagrees with the 'binary conceptualisation of the digital divide' which looks to the rate of access as the sole determinant and proposes the use of "socio-economic variables such as capability/skills, content, literacy, income and culture as well as the nature of commercial and regulatory environments, that account for the absorptive capacity of societies toward technological innovations". Presenting their findings of a study of the problem within the US, Mosseberger *et al* similarly point out, "...having access to a computer is insufficient if individuals lack the skills they need to take advantage of technology" (Mosseberger et al., 2003, p.1). They add, "Access is undeniably important, but the real policy question is how well society will be able to take advantage of the opportunities offered by technology" (Ibid, p.5). To answer that question, they looked at the "skills divide", the "economic opportunity divide", and "the democracy divide" as being crucial to their studies.

At the background of any determination of the digital divide are the differing levels of access to information resources or facilities in some countries or communities as compared with others. Indeed, the degree of penetration of ICT (and elements of such) in all countries has been regularly monitored to assess whether countries, communities or groups within them have moved further ahead than, or fallen behind, others. Leagues of tables have been regularly issued by various organisations (See, for example, UNCTAD, 2006; Internet World Stats) and deployed in analysis of trends and issues.

Regardless of the differences in approaches or terminologies used in diagnosing the nature of the problem of digital divide, it would seem reasonable to hold that issues relating to affordability and availability of the basic infrastructure for ICT that lie within the competence of governments and private businesses differ greatly from those of resources that communities, groups and individuals may or may not muster to take advantage of that infrastructure and deploy them for their everyday needs. Yet, all of these in turn depend ultimately on the level of industrialisation and commercial standing, or lack thereof, of the relevant country vis-à-vis other countries. Any tale, therefore, of a digital divide which does not link achievements or failures to the standing of a country within the global economic and technological dynamics would not only be futile (as lacking in an essential perspective) but also devoid of logic (by ignoring the relativism inherent to comparisons of divergent cultures, geographic locations and histories).

It is also the author's contention that any meaningful discourse on the digital divide should concentrate on the impact of the digital revolution on nations' or communities' successes or failures, at most, since the late 1980s. To extend any such studies to times and technologies beyond the onset of the digital revolution will not only lead to confusion but end up restating the obvious conclusions that development theories (especially the dependency school) on the post-War years have long ago reached: developing countries (DCs) being at the bottom of the pile without much real prospect of getting out of their decay (See generally, Amin, 1976). Merely to translate those long-standing conclusions into digitalspeak, stack them up as the ever widening digital divide and come out thundering against the 'information rich' or 'technology haves' will be to rehash a paltry truth everybody has known all along.

On the other hand, an investigation of the digital divide in terms of the incidence and spread of elements of ICT, such as the Internet[2] or cyberspace, in countries, communities or groups or per head of population without any reference to the prevailing disparity in economic, technological and other forms before the onset of such elements would merely lead to tautological conclusions. Surely, the adverse or other impacts of the digital revolution could be established properly if such an investigation takes account of the prevailing disparity among countries, groups and communities before its onset. Moreover, a determination of the existence or otherwise of the digital divide should require a perusal of all elements of ICT across the board rather than one or a set of them.

3. Intellectual Property and the Digital Revolution

There is very little controversy over what constitutes "intellectual property" (IP) though, occasionally, confusion arises about its boundaries and the legitimacy of private, non-commercial use of such property. In theory, all forms of creative works that have been fruits of labour and 'perspiration' and proved to have established a modicum of novelty over and above that currently available to society can claim protection under the law (see the figure below) and in the name of the creator. In theory, therefore, any work embodying a quantum of creativity, Q, is eligible for a form of protection for a period of time, T, regardless of which category it falls under (For a fuller discussion, see, Endeshaw, 2004). The grant of a proprietary status to such works under specific forms of legislation or by the courts has developed into an unquestionable facet of every industrial society for the past 150 years or so.

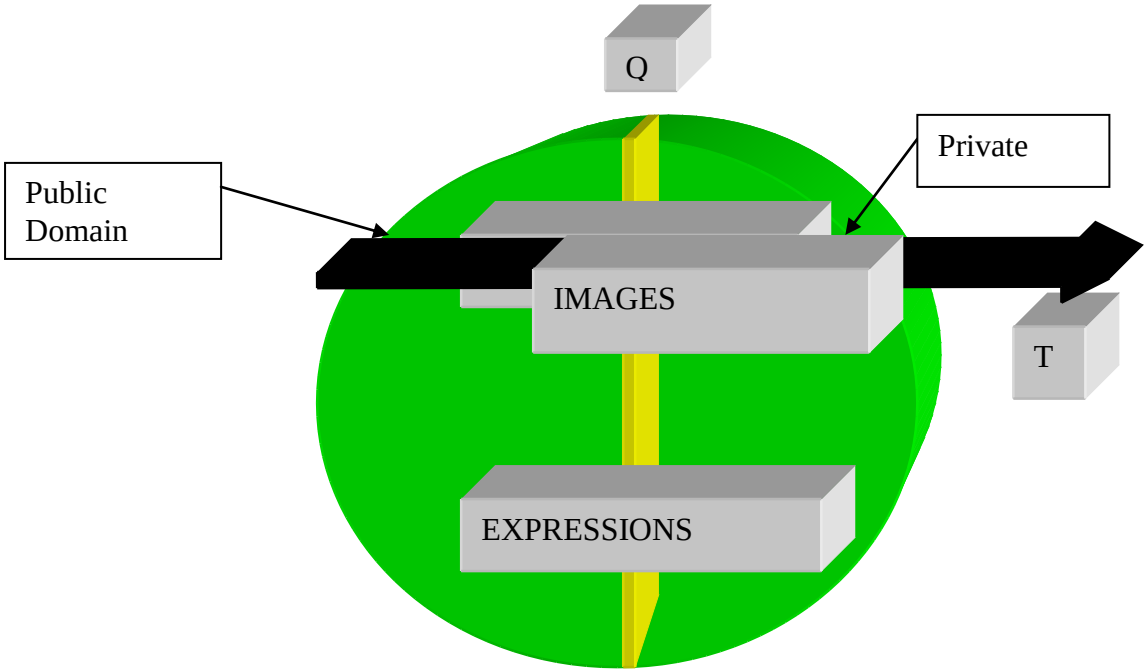

Figure 1: Principal Categories of IP

[2] See Gonzalez, 2005a, where the frame of reference is content issues on the Internet. See, also, Norris, 2001.

IP has traditionally been classified into four categories: patent, copyright, trademarks and designs. All save copyright (expressions) arise from registration of the respective form of creative work (invention, signs and appearances) with government authorities (previously called the patent office but increasingly changed to intellectual property office) and the issue of a certificate by the same authorities specifying a named person's right to use the creative work on an exclusive basis. The right holder decides whether to apply the creative work to produce goods or services for sale or licence it to others to use the said work towards the same objectives. This right enables the creator to recoup expenses incurred in the course of the creative process that led to the work such as research and development (R&D) in the case of inventions. This is particularly important for huge companies such as pharmaceuticals that engage in continuous and expensive R&D. A lot of commentary has asserted that were inventors not allowed to keep the right to exploit their inventions to themselves, the stock of new ideas generated in societies might dry up. Other views have also contested the relevance of patents for inventions though those views are heard less and less these days.

The nature of copyright differs from the 'industrial property' categories largely because the creative process takes on a passive form leading to no transformation of material surroundings it captures as its setting (Ibid, pp.357-358). Thus a painting remains a reflection of the person or thing it is presumed to capture in lines and colour without anything happening to the person or thing as such. This contrasts with the physical transformation of a person through plastic surgery and possibly leading to claims of a design or an invention. The overall provision in copyright for expressions of whatever form has enabled it to provide refuge for all sorts of non-industrial, non-material or, in short, passive activities extending from poetry to dramatic episodes to mime to stage performances (musicals, circuses, acrobatics) to electronic circuitry (software).

Any serious opposition to the grant of rights to ideas in the forms that have come to pass emerged from the second half of the 20th century from previously colonial countries that sought to modify it to reflect their economic and cultural needs. It was only since governments and legislature in industrial nations revised, updated and extended IP in many directions, both through the Trade-Related Aspects of Intellectual Property (TRIPS) and afterwards in the urge to cope with the impacts of the digital revolution, that disquiet on the renewed status of IP within these nations too has gained ground. Today, both groups of nations have found advocates, respectively, for change and rethinking of the post-TRIPS status quo.

The disquiet in the developing countries (DCs) relates chiefly to the inappropriateness of the forms of IP that have been transplanted to them during colonialism and afterwards and the huge pressure mounted against them not to change them to reflect internal/domestic economic, cultural and technological needs. It is now an established fact that any post-TIPIS changes can only be upwards (reinforcements, upgrading, deepening etc) whereas the demand of most DCs from the decades prior to TRIPS was for an overhaul of the IP system as a whole to work out how it might be customised to serve their economic, technological and cultural requirements. At the height of the clamour to make generic drugs available to DCs to fight the HIV/AIDS epidemic untrammelled by IP that pharmaceutical companies strove to erect against them, the 2001 Doha Declaration seemed to pave the way for change. Yet, it only

provided a momentary reassurance to DCs of an allowance which was already part of the workings of patent law. In other words, the pretence of accommodating the demands of the DCs was in reality a restatement of existing law and no more.

The repeated plea for rethinking IP even in the industrial nations arises from the assessment that post-TRIPS extensions in IP, in the wake of the digital revolution and the rapid advances of biotechnology have deleterious consequences to innovation,[3] culture, the economy and, even, democracy.[4] Thus the patenting of human genes has been viewed as not only unethical in commodifying the human body and in appropriating naturally existing substances but also as being harmful to public health and to research (Andrews, 2002, pp.803-808). Patenting of business methods as well as other trivia, traditionally considered outside the bounds of patent law, has triggered objections to the clogging of patent offices with all kinds of claims for registration[5] as well as a possible gridlock of the Internet resulting from the diversity of patent grants for software (application programs) enabling online transactions.[6]

In the realm of trademarks, a growing extension of current forms of protection under the rubric of anti-dilution law (in the US) or "likelihood of confusion" (in its UK variant) portends to erect a protective ring around famous marks way beyond the expectations under the Paris Convention or, indeed, TRIPs. It should be noted that the recent push for increased protection for famous marks was intended as part of the

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[3] In connection with the latest attempt to revise US patent law, through the Patent Reform Act of 2007, Chandler, Mark *(*senior vice president and general counsel of Cisco Systems) has reportedly commented that "...our patent system is broken. Patents are increasingly used not as shields to protect the fruits of creativity from misappropriation, but as weapons to extract money from the productive part of society and transfer it to entrepreneurial speculators whose only innovation is new ways to game the system". See, "Patent reform...or ruin?" The Washington Times (August 1, 2007) quoted in http://www.patentfairness.org/media/in_the_news.cfm. Bruce Sewell, general counsel for Intel Corporation, wrote, "The U.S. patent system is beginning to show its age; outpaced by the swift evolution of technology and commerce, it increasingly favours speculators over innovators, impeding innovation and economic growth". See, Sewell, B (2007) "Patent Nonsense", The Wall Street Journal, July 12, 2007; quoted in Ibid.

[4] Thus Fred H. Cate wrote, "Without access to information and the freedom to express ourselves, citizens cannot elect their leaders and oversee the activities of the government... The consent of the governed is the only legitimate source of sovereign power in a democracy, and it is only meaningful if informed". See Cate, Fred H (2002) "The commodification of information and the control of expression", AMICUS CURIAE Journal of the Society for Advanced Legal Studies, September/October 2002

[5] The US alone has reportedly a backlog of 1 million patents which would require 2.5 years to clear; at the same time new applications will continue to be received. See Tove Gerhardsen, "WIPO: 'Explosive Growth' In Patent Filings Strains IP System", Intellectual Property Watch, 10 August 2007; available at http://www.ip-watch.org.

[6] One of the contests in the EU took the shape of vigorous opposition to the proposed software patent directive (named the "European Computer-Implemented Inventions Directive"). In April 28, 2003, scientists from around Europe signed a petition to the European Parliament against it contending that such a move will not only impact on how software will be developed in EU but also lead to the squeezing out of smaller businesses by the larger corporations very much like the practice in the US. See, Matthew Broersma, "Scientists protest EU software patents", CNET News.com, April 28, 2003. Later, the Foundation for a Free Information Infrastructure (FIFF) led a one day shut down of websites displaying this in three languages: "This page is temporarily closed in protest against software patents. Web sites may soon be closed down regularly due to software patents. Software patents can get you prosecuted for publishing texts you wrote yourself." See, Mello, John P Jr. (2003) "Software Patent Protest Moves from Street to Internet", august 26, 2003, at http://www.technewsworld.com/story/31431.html; accessed on October 29, 2007.

groping towards a solution for domain name disputes that emerged first in the US. Now, we have the additional instrument in the US of the anti-squatting law.

The general perspective that has taken hold everywhere is that of erecting a defence for established marks, particularly against their misuse as domain names. In other words, domain names are still not considered proper subject matter for protection in their own right. The approach of incorporating 'dilution' rather than the loose "likelihood of confusion" standard in the UK for resolving domain name disputes may appear more appropriate; however, the issue is deeper than the adoption or non-adoption of existing protective formula for general or famous marks. Domain names are arguably a species of marks but their impact necessitates more than tinkering with existing rules and procedures devised for trademarks. It is interesting to note that neither the Internet Corporation for Assigned Names and Numbers (ICANN) nor the World Intellectual Property Organization (WIPO) have recognised this or given it any serious thought.

The most popular controversy regarding the relevance of IP to the digital age was, nonetheless, born amidst the information glut that the Internet spawned. Some saw in the huge potentials for the Internet to allow the creation, exchange and dissemination of information as the end of copyright (Barlow, 1994). Others saw the phenomenon as leading to the divorce between content and medium so that, in their view, 'information wants to be free' and cannot any longer be bottled under any law to remain proprietary. The debate continues to rage over whether the creative works that authors produce will be deprived of legal protection even if the means of distribution and exchange appear to have been transformed infinitely more than the printing revolution sparked by the Gutenberg press. Clearly, there is a need to make adjustments to the scope of copyright and the extent of the permissibility for individual users and society at large to share in the fruits of others' labour but calls for the abandonment of copyright remain illusory.

4. Perspectives of Stakeholders in Bridging the Digital Divide

While there is growing consensus among governments, corporations and the general public that the digital divide needs to be narrowed, if not eliminated, the attitudes of the different stakeholders towards its nature and the ways in which it can, or must, be tackled vary greatly. In that sense, the approach towards bridging the digital divide appears to be just like arresting global warming. As regards the latter, there is almost universal agreement that global warming needs to be stopped and even clawed back for the good of humanity but the problem of whether and how that can be done continues to be as thorny as ever.

The World Summit on the Information Society (WSIS)

The World Summit on the Information Society (WSIS), probably the largest and most representative global body that could address the problem of the digital divide, adopted a Declaration and an Action Plan (Geneva, 2003). It recognised that "the benefits of the information technology revolution are today unevenly distributed between the developed and developing countries and within societies" and expressed its commitment to turn "this digital divide into a digital opportunity for all, particularly for those who risk being left behind and being further marginalized"

(International Telecommunications Union, *WSIS Outcome Documents*, December 2005, Geneva; paragraph 10 of its Declaration of Principles).

In order to achieve these goals, WSIS sought to mobilise governments, "the private sector, civil society and international organizations", in other words everybody, to express "strong commitment" and "digital solidarity, both at national and international levels" (Ibid, paragraph 17) as iterated through the *Digital Solidarity Agenda* within the *Plan of Action*. As usual with international fora and agencies, the major plank of the planned effort to bridge the gap takes the shape of calls for more aid and assistance from all the stakeholders, amongst others, through the proposed "voluntary Digital Solidarity Fund" (Ibid, paragraph 61). If one were to reread the documents of the UN Conference on Trade and Development (UNCTAD) on the contentious issue, in the 1960s and 1970s, of how to effect transfer of technology (TOT) to DCs, by inserting ICT in place of TOT, one would find a striking resemblance. The parallels of the declared commitment to promote access to, and use of, ICTs today with the equivalent hopes and urges to do the same for TOT three decades ago, leave one in no doubt about the identical nature of the problems.

Even where the general approach towards tackling the *current* problem of the digital divide appears to be a throwback to the *past*, one might hope that the WSIS would supply a few points of departure in the realm of IP. WSIS states, instead,

> Intellectual Property protection is important to encourage innovation and creativity in the Information Society; similarly, the wide dissemination, diffusion, and sharing of knowledge is important to encourage innovation and creativity. Facilitating meaningful participation by all in intellectual property issues and knowledge sharing through full awareness and capacity building is a fundamental part of an inclusive Information Society (Ibid, paragraph 42).

In effect, WSIS is reaffirming existing forms of legal recognition available to creators of new works while at the same time calling on them to engage in 'knowledge sharing'. This is clearly an attempt to take no side in the growing dispute between proprietors increasingly bent on more stringent demands for protection and enforcement, on the one hand, and end-users and the general public, on the other, who have sought to shift the balance in their favour by either narrowing down the scopes of protection (See, for instance, Khor, 2002, pp.214-224), lessening the burden on under-resourced communities, groups or individuals (Ibid) or, even, by throwing certain forms of information open to use by anyone.[7]

As if to deflect criticism of the one-sided approach of sanctifying a steady course in IP just as proprietors would have expected it to, WSIS has inserted some bland notions of sharing information and knowledge in the Geneva Plan of Action. While seeking to prompt governments and other stakeholders to create for the public "affordable or free-of-charge access" to the ICT and provide help for such, it does not fail to mention the necessity of "respecting Intellectual Property Rights (IPRs) and encouraging the use of information and sharing of knowledge".[8] Yet, this approach of

[7] The National Human Genome Research Institute's (NHGRI) issued its policy, "NHGRI Policy for Release and Database Deposition of Sequence Data" on December 21, 2000, to have all genome sequences generated by the Human Genome Project to be deposited into a public database freely accessible by anyone. See, http://www.genome.gov/10000910.

[8] International Telecommunications Union, Number 10 (d) of the Geneva Plan of Action 2003.

paying homage to the status quo betrays a total lack of will to acknowledge the problems that IP faces from the digital revolution as well as the swathe of opinion on the need for change in IP that is sweeping the world, including the corridors of corporate powers and governments. Constituted as it is of governments and other bodies with a spectrum of varying (and at times diametrically opposed) views on all the attendant factors that impinge on the digital divide, the WSIS could not conceivably have openly recognised, leave alone agreed, to settle the numerous issues that bedevil IP in the information society. Yet, one would have expected of it, at least, a clear statement of the nature of the problems that will continue to haunt it and fuel the digital divide. But that has not happened. The WSIS has merely followed the beaten track of the UNCTAD and will probably not escape the fate of the latter either -- hovering between outright annihilation and irrelevance.

The Organization for Economic Cooperation and Development (OECD)

The OECD does not seem to recognise any form of digital divide among or within its members though it acknowledges the existence of differences in the levels of impact on productivity and diffusion of ICTs between countries and the need to "facilitate access by disadvantaged groups as well as by people living in remote areas" (OECD, 2003, p. 23). Crucially, it maintains the remedy for this to lie within market forces:

> Market reforms to reduce the costs of new technology can facilitate access by disadvantaged groups as well as by people living in remote areas. The development of infrastructure is the key to greater inclusiveness. Competition is important for this to happen, but may not be sufficient in all cases. If governments want to ensure that all areas and social groups eventually have access to high speed Internet services, they must do this in a least-cost way that does not distort market forces (Ibid).

Inevitably, while it indirectly seeks to address inequality of access to ICTs within its members, the focus of its recommendations to its member states is to exhort them to adopt strategies to harness ICT for the further growth of their economies. The 2003 report, therefore, dwells on implementing measures and policies to further entrench ICT in the economies of OECD countries. The OECD considered the problems that afflict DCs only in passing. Even then, the OECD merely seeks to replicate in DCs the policies it considers to be appropriate to its member states:

> Many of the policies recommended in this report apply to developing countries as well. Moreover, development co-operation policies have a key role to play in helping developing countries create the right policy environment to attract ICT investment and build the required capabilities to make use of ICT as part of achieving their broader economic and social goals (Ibid, pp.23-24).

The OECD's stance resonates with that of the Global Economic Forum's 'Global Digital Divide Initiative Taskforce' (GDDI) < http://www.weforum.org>. In spite of its expressed commitment to address the problems of the digital divide, the GDDI has shown a reluctance to propose any measures beyond manipulating the operation of the market: loosening up regulatory barriers in the acquisition and distribution of ICTs. The GDDI has not at any point raised any notion of tackling the possible barriers that IP might present to access to ICTs and diffusion of knowledge.

Not surprisingly, the global ICT corporations have adopted a similar perspective to that of the OECD. They have sought to demonstrate their appreciation of the problem

of the digital divide although their responses largely remain limited to the provision of technical assistance and reduction of prices in certain respects. Sun Microsystems, for instance, routinely makes statements on bridging the digital divide without expounding any corporate policy as such (Sun Microsystems, 2006). Most of the statements are in connection with new resources it has made available in the market to the buying public across the world. In essence, the repeated references to the 'digital divide' are mere marketing ploys and bear no relation to the urge to take account of the widening gap and provide means of narrowing it down more specifically in under-resourced parts of the world. Even when mention is made of offers and grants by the corporation to certain schools and communities, these are invariably in terms of computers and minimal amounts of technical assistance in a limited fashion.

Microsoft likewise boasts of the variety of forms of assistance it provides to "more than 139 countries across" Europe, Middle East and Africa (Microsoft, 2005). Thus it states, by reference to the Middle East

> We are working with governments, NGOs and others in the region to explore fresh and innovative ideas that will remove barriers to work and help governments take advantage of the global knowledge economy. Together we are investing in ICT to streamline government services and building high-quality systems of education that will empower youth, women and the unemployed with the skills and knowledge they need to realise their potential (Ibid).

In connection with Africa, Microsoft declares

> At Microsoft we are committed to playing our part in Africa's development by forming partnerships to build the local knowledge economy: enabling ICT access and skills development and the creation of localised content for African communities, teachers, students, governments and businesses (Ibid).

Microsoft, nevertheless, appears to reject any notions of radical changes in the status quo regarding the roles of IP in the digital divide. Bill Gates reportedly castigated those who seek "to reform and restrict intellectual-property rights" (Kanellos, 2005) as follows:

> ...I'd say that of the world's economies, there's more that believe in intellectual property today than ever. There are fewer communists in the world today than there were. There are some new modern-day sort of communists who want to get rid of the incentive for musicians and moviemakers and software makers under various guises. They don't think that those incentives should exist (Ibid).

In his view, only piecemeal changes to the system, such as fine-tuning the patent system could be appropriate. As for the role of IP, he contends "... when people say they want to be the most competitive economy, they've got to have the incentive system. Intellectual property is the incentive system for the products of the future" (Ibid).

International Non-Governmental Organizations (NGOs)

The position of international NGOs as regards tackling the problem of the digital divide appears to be to favour reforms that could address the needs of deprived groups within the industrial nations and DCs in general without committing to exactly what sort of reforms would be acceptable.

One of these NGOs is ActionAid which welcomed the report of the Commission on Intellectual Property Rights in 2002 for "acknowledging that intellectual property rights legislation has a detrimental effect on poor countries" (Kirby, 2002). It saw the report as exposing the monopoly over biotechnology that patents allow big business to exercise, "thereby prioritising profit over the needs of poor farmers" (Ibid). It urged the UK government to follow up the report by initiating a 'radical' reform of TRIPS and the adoption of "a system that protects the rights of poor farmers and supports development worldwide" (Ibid). It warned, "If this report is cast aside, it will be a disaster for millions of poor farmers" (Ibid).

ActionAid has gone further to characterise current copyright law as leading to "excessive pricing, limited adaptability and unavailability of suitable learning materials" in the 'South' and hence adding its voice to the "access to knowledge" (a2k) campaign (ActionAid).

OXFAM looked at the broader picture of the role of IP in "the control of knowledge" by major corporations and the "damaging" consequence of this particularly "in poor countries" (Oxfam, 2001). It saw the impacts of TRIPS to be the exclusion of "poor people from access to vital 'knowledge goods' such as medicines, seeds, and educational materials" through the "higher prices" it empowers corporations to impose (Ibid). Above all, it perceives TRIPS to "exacerbate the technological divide" already existing "between rich and poor countries" mainly because the latter are "net importers of the kinds of high-tech goods and know-how protected by TRIPS" as well as being subjected to higher prices and licence fees (Ibid).

As regards whether the IP system might in the long term be beneficial to DCs, Oxfam argues to the contrary: that it "restricts the ability of poor countries to innovate and participate effectively in global markets" through prohibition of imitations and adaptation of new technologies. It also notes, "the lack of technological capacity [within DCs] means that foreign companies will capture most of the benefits of stronger IP protection" (Ibid).

In terms of overall objectives, Oxfam appears to champion "outright abolition" of TRIPS though, as a matter of campaign strategy, it believes that piecemeal reforms (in other words, 'salami' tactics) have a better chance of getting popular acceptance and serving as a means of stopping the major industrial countries and their corporations from "bullying poor countries over their patent laws" (Ibid). In practice, therefore, Oxfam prefers reviews of TRIPS in certain respects such as allowing "longer transition periods for developing countries to comply with TRIPS", and more flexibility in the manner of granting and the scope of patents as well as exemption from them for medicines, for instance (Ibid).

Oxfam aims, in the long run, to build up "the pressure for change" without necessarily proposing any alternatives to the TRIPS. Its dilemma is reflected in the question it posed at the beginning of its position paper: "Will knowledge be monopolised by corporate interests for private profit, and shaped by the markets of rich consumers, or will it be kept within the public domain, and used to help end poverty, hunger, and disease" (Ibid)? Its objection to knowledge being controlled by corporations is as dubious as its hope that even proprietary knowledge could be "kept within the public domain" is a pipe dream. The fact of the matter is that the major proprietary

stakeholders in IP (and governments that back them to the hilt) cannot be convinced that they would gain more from placing their IP in the public domain. It should also be noted that Oxfam's view of turning IP held by major Western corporations over to the public domain for the purpose, essentially, of ending "poverty, hunger, and disease?" in DCs is unbelievably naive. Not only is this a repeat of the failed demand of the UNCTAD-led movement in the 1970s to make all knowledge "the common heritage of mankind" and benefit DCs through a massive TOT but has yet to find support even for the benefit of the industrial countries themselves. Oxfam's apparently altruistic urges to rescue the DCs from problems they face in the IP field therefore remain hollow.

The Friends of "The Intellectual Commons"

The brief survey of the diverse perspectives of the stakeholders will not be complete without a reference to the activities and standpoint of certain groups (initiated by academics and self-confessed 'hackers') sharing no particular identity but probably classifiable as the 'Friends of the Intellectual Commons' (FIC).[9] The main characteristic defining these groups is their advocacy of the maximum reform of IP to release what might otherwise be proprietary knowledge into the public domain (or the 'intellectual commons', as they prefer to call the resulting new body of publicly available knowledge). They consider such a measure to be necessary to meet the demands of societies both in the industrial and developing nations, now as well as in the future, for free access to information. Some even tend to veer towards pushing for the total abolition of the IP system or some of its categories, the most popular candidate for axing being copyright. McKenzie Wark (2004, at para.195) thus contends that in order to produce new information, hackers need access to information unfettered by "private property and the commodity form".

In terms of the substance of their contentions, the FIC broadly hold, "The redistribution of property rights in the case of information feudalism involves a transfer of knowledge assets from the intellectual commons into private hands" (Drahos & Braithwaite, 2002, p.2).[10] While it is true that the role of technological (and hence self-help) measures deployed by ICT corporations to lock in whatever information (proprietary or non-proprietary) they lay their hands on and keep them out of the reach of non-paying potential end-users is growing, the generalisation expressed in the quoted statement is unjustified. Indeed, it represents a key fallacy, propagated by sections of the FIC, that IP has allowed the appropriation of the intellectual commons. We will return to this fallacy later.

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[9] This label seems to be appropriate in light of previous use of 'Friends of IP' by the major industrial nations who pushed IP on to the agenda of the Uruguay Round and produced TRIPS as well as, more recently, by 'the Friends of Development' who seek to place the re-examination and revision of TRIPS at the centre of the Doha Round multilateral trade negotiations.

[10] They assert further, "Patent law…has become one of the main mechanisms by which public knowledge assets have been privatised2" (Drahos & Braithwaite, 2002, p.150). Again, "Information feudalism is a regime of property rights that is not economically efficient, and does not get the balance right between rewarding innovation and diffusing it. Like feudalism, it rewards guilds instead of inventive individual citizens. It makes democratic citizens trespassers on knowledge that should be the common heritage of humankind, their educational birthright. Ironically, information feudalism, by dismantling the publicness of knowledge, will eventually rob the knowledge economy of much of its productivity" (Ibid, p.219).

In support of their views, the FIC point to the growing trend (notably among hackers) of 'sharing' creative works, in particular software and literature, that is taking shape in the digital environment. Bays and Mowbray (Bays & Mowbray, 1999) comments: "Individual Internet users donate content for other Internet users to use free of charge. In return, each individual receives access to all the content made available by others. The amount an individual receives is much more than they could ever produce...". An aspect of the activity of this supposedly carefree new community is the release of software developed by its participants for sharing among the public. The 'free' or 'open source' software movement lets programmers and users acquire software together with the source code for free, under a licence,[11] with the expectation that later modifications to the source code would also be made freely available to all (O'Sullivan, 2002). While differences have emerged between the proponents of 'free software' (the earliest project[12]) and 'open source software' (coined later to refer to the same[13]), more particularly regarding the nature of 'freedom' underlying each and the extent to which commercialisation of such software will be permissible, both see themselves ranged against proprietary software. There is no doubt that the practical impact of the free or open software movement has been growing; some have viewed it as "challenging the hegemony of proprietary software in some fields, while it dominates in others" (O'Sullivan, op.cit.). It is even argued that, without free software "the Internet would virtually grind to a halt" (Ibid).

Of potentially greater importance in the context of the digital divide is the fledgling "open access" movement which seeks to make content available to users online, free of charge and without the normal restrictions of copyright. To safeguard online content from being appropriated commercially but enable users to enjoy all forms of use without restriction, the scheme operates a licence. In that sense, the free access relies on a waiver of copyright that authors might otherwise claim over their works. Such a scheme is consequently more applicable to circumstances where authors do not earn royalties (as in peer-reviewed journal articles) and do not depend on such income for their living (Suber, 2007).

Other schemes include the Berlin Declaration on Open Access to Knowledge in the Sciences and Humanities <http://oa.mpg.de/openaccess-berlin/berlindeclaration.html > and the Budapest Open Access Initiative < http://www.soros.org/openaccess>. The

[11] This has been termed a 'Copyleft licence' and defined as " a general method for making a program or other work free, and requiring all modified and extended versions of the program to be free as well." See, http://www.gnu.org/copyleft. The intended contrast obviously is with copyright. The copyleft license is hence viewed as "a legal instrument that gives everyone the rights to use, modify, and redistribute the program's code *or any program derived from it* but only if the distribution terms are unchanged" (Ibid). The reversal of the name from ``copyright" into ``copyleft" is to suggest this difference.

[12] See, www.fsf.org, which defines 'free software' by reference to "four kinds of freedom, for the users of the software", namely "to run the program, for any purpose"; "to study how the program works, and adapt it to your needs", access to the source code being a precondition for this; "to redistribute copies so you can help your neighbour"; "to improve the program, and release your improvements to the public, so that the whole community benefits", again access to the source code being a precondition for this. In addition, they stress that " 'Free software'' does not mean 'non-commercial'".

[13] See, www.opensource.org.. 'Open source' is defined as including access to the source code as well as additional criteria such as free distribution (without any royalties or fees); the source code to be made available even when a part of a product; modifications and derivative works to be allowed.

Berlin Declaration urges the creation of a 'global and accessible representation of knowledge' whereby "[c]ontent and software tools must be openly accessible and compatible". It characterises 'Open Access' as

> a free, irrevocable, worldwide, right [granted by authors and right holders to "all users"] of access to, and a license to copy, use, distribute, transmit and display the work publicly and to make and distribute derivative works, in any digital medium for any responsible purpose, subject to proper attribution of authorship … as well as the right to make small numbers of printed copies for their personal use <http://oa.mpg.de/openaccess-berlin/berlindeclaration.html>

The Budapest Open Access Initiative regards 'open access', as "free and unrestricted online availability" <http://www.soros.org/openaccess>. Its focus is the literature that "scholars give to the world without expectation of payment" and includes peer-reviewed articles as well as comments and notes (Ibid). It describes the extent of "open access" to this literature as

> its free availability on the public internet, permitting any users to read, download, copy, distribute, print, search, or link to the full texts of these articles, crawl them for indexing, pass them as data to software, or use them for any other lawful purpose, without financial, legal, or technical barriers other than those inseparable from gaining access to the internet itself (Ibid).

Both sets of schemes place restrictions in terms of requiring users to acknowledge authors as well as maintain the integrity of their works. They also recognise the cost implications of providing open access. However, they fail to address how the challenge that such costs represent particularly for under-resourced communities and groups should be overcome.

A parallel movement has also emerged in the shape of "the Creative Commons" (as well as the "Science Commons" <http://sciencecommons.org/about/> initiated in 2005 to cater for scientific works) which seeks to make works freely available to the public under a license that protects the IP in the works. The basic idea is to create an "intellectual property conservancy" that "will serve to protect works of special public value from exclusionary private ownership and from obsolescence due to neglect or technological change" <http://wiki.creativecommons.org/Legal_Concepts>. It is apparent that the resort to IP to preserve 'the commons' departs from the anti-proprietary stance of FICs. Indeed, this fact is openly acknowledged: "A Creative Commons license is based on copyright" (Ibid).

The Creative Commons licence comprises of four key terms: the attribution of the relevant work to the author or licensor; the restraint against using the work "primarily" for commercial ends; the making of only "verbatim copies of the work" without therefore adapting or changing it; allowances for making "derivative works" on condition that they are licensed "under the same Creative Commons license terms" (Ibid). In a sense, the purpose of this mechanism is "to enable creators and licensors to license their works on more flexible terms" such that licensees benefit from using a work "without having to ask for permission" as long as they "use it consistent with the license terms" (Ibid). Indeed, the ease of using (sheltering under) the scheme to gain access to works without suffering any legal action from rights holders may have contributed to its adoption by a number of organisations. Thus the British Broadcasting Corporation (BBC) has come up with its 'Creative Archive' initiative that would "allow people to download clips of BBC factual programmes from

bbc.co.uk for non-commercial use, keep them on their PCs, manipulate and share them, so making the BBC's archives more accessible to licence fee payers" (Press Office, BBC, 2006).

The proliferation of schemes and experiments to provide freely and publicly accessible material has been regarded as signalling the end of IP. One commentator thus contends, "The fact that people continue to post content online has to constitute hard evidence against some of the classic mantras expressed in the utilitarian justification for intellectual property" (Gonzales, 2005b, p.115). He asserts further that "people are willing to create without hope of remuneration, and caring little for the strength of protection awarded by laws that protect intellectual creations" (Ibid, p.116). Another writer argues that, in the new environment, new elites or 'netocrats', "defined by the fact that they manipulate information rather than managing property or producing goods", are taking over the power from "the old capitalists" obsessed with money, titles and the like (Bard & Soderqvist, 2002, p.132). According to them, the new status "requires entirely different characteristics: knowledge, contacts, overview, vision" (Ibid, p.198). The new asset is consequently not control over information as such but "[t]he ability to network and gain an overview of large amounts of information that is sought after by everyone [and] cannot be copied or stolen" (Ibid, p.255). It would appear, hence, that the notion of property in ideas or knowledge is doomed.

5. Intellectual Property and the Digital Divide

The above review of the perspectives of the OECD, global ICT corporations and industrial governments that back them has predictably revealed a steadfast affirmation of IP and its continued role in spite of any perceived digital gaps opening up in any society. Any allowances they make for change in IP are of a piecemeal nature, in effect to modify its application when the technological medium prompts such. The only serious support for reform, even abandonment, of IP to bridge the digital divide hailed from international NGOs and the FICs.

The author has already argued that the NGOs have yet to articulate their views fully and move beyond general pronouncements. Essentially, they have failed to show how the 'rich North' can afford to strip the proprietary basis of information vital for the health, education and culture of the 'poor South'. Until they do that, it is submitted that their loud demands for change in international IP, particularly their espousal of the abolition of TRIPS, will always have a hollow ring to them.

The FICs do not fare better either; their pursuit of a total reversal of IP is not borne out either theoretically or through their practice. Thus, in spite of his antipathy to IP and his preference for its abolition, mentioned above, Wark bends backwards to recognise the basic needs of the hackers through IP:

> To maintain their autonomy, hackers need some means of extracting an income from the hack, and thus from some limited protection of their rights...In the short term, some form of intellectual property may secure some autonomy for the hacker class...but in the long run, the hacker can realise its virtuality through the abolition of intellectual property as a fetter on the hack itself (Wark, op. cit., para.196).

Wark's admission that hackers might inevitably resort to IP as a means of earning income, be it for a limited time, while their ultimate desire is the total abolition of IP betrays the FIC's fundamental dilemma, namely, whether jettisoning IP entirely can be a viable project in a world where creativity is predominantly harnessed by big capital in the furtherance of the age-old motive for profit and even threatens to snap up any voluntary abandonment of property rights in newly created works such as 'free software'.

Nonetheless, the FIC's contention that the major corporations have been able to use IP to appropriate the intellectual commons has gained notoriety. In order to understand the scale of confusion that the contention has generated, one needs to consider two distinct aspects of this problem: the nature and scopes of rights granted under IP laws as well as the extent to which public domain matter could become linked to, or absorbed in, the subject-matter of rights.

It is common knowledge that the boundary of claims that IP holders, even applicants, put up under all categories is always elastic and, were the system lacking in means of denying or averting unjustified claims, the constant blurring of distinctions could make the IP system meaningless. Indeed, this is one of the principal issues that the courts have to address repeatedly in contests between warring claimants. While the variations in subject-matter may present more or less difficulties for determining the appropriateness of a grant, the IP administrators as well as the courts always seek to strike down claims that are not backed by the level of creativity and uniqueness required in the appropriate field to qualify for a grant. Moreover, the same process works to keep out public domain materials from being appropriated in the guise of new claims or as part of the scope of claims.[14]

The constant battle in front of the administrative agencies and the courts to reject or slim down claims unsupported by evidence of significant advance in technology or form of expression or both is recorded in so many forms that one fails to understand why the allegation is made that the public domain is being transferred to private hands, just as during the enclosure movement in English history. Even when, as pointed out already, the digital revolution has opened up possibilities for appropriation of public domain information, willy-nilly, this has not been necessarily through the IP system. That IP continues to recognise claims to creative works and grants rights to persons or corporations even in the digital era is not a manifestation of any inherent defect in the law. That is what IP was supposed to do from early on. The question therefore turns into whether the application of IP law to digital products has been supplanted by other extra-legal practices and processes thus overthrowing the assumption that only creative works newly produced by persons and corporations can be granted proprietary status. In that sense, the FIC should look beyond current IP law

[14] Zermer contends that the public as a 'collective' contributor to copyrighted works (and hence as authors) need to be allowed a share in the recognition of rights which presently appears to be bestowed on individuals alone. See, Zermer, L (2007) The Idea of Authorship in Copyright, Ashgate. However, this view fails to see the problem underpinning current copyright, namely that its scope has not been adequately demarcated and its ostensible basis in the creativity of expressions has not been consistently or rigorously upheld by the courts. In other words, a reform of copyright would hardly be necessary in the direction indicated by Zermer as in theory even current copyright bestows or is supposed to bestow rights in original expressions. Where therefore the public's contribution has wilfully or in advertently been claimed (over-claimed) by individuals as it happens in patent applications, the failure of the system/users or the market to rectify it is no indication of the failure of copyright as such.

and work out how prevailing access to public domain materials in analogue form could be maintained in the context of digital forms and content in whatever medium they may be found.

In the event, the principal solution that appears to have evolved in response to the demands and practices of ICT corporations is to legitimise their use of technological measures and devices in locking away non-copyright materials for their paying clients only. For that purpose, the prevailing provisions of IP law that covered data bases have been revised across Europe to incorporate protection of essentially non-proprietary matter provided that the relevant database business had invested resources to establish and maintain such. Arguably, the concerns expressed of the lack of adequate protection under the prior law for non-copyright materials in digital databases could have been addressed under some form of 'unfair competition' rules which proscribe not access but direct imitation. However, this has not been the approach taken in the US, or in Europe, though the latter had plenty of opportunities to find innovative solutions, rather than follow the US for purposes purely of narrowing the comparative advantages that US corporations could have over their EU counterparts.

Indeed, the EU could have trail-blazed in this area of law by rejecting the obvious uncertainty created in adopting a quasi-copyright solution for non-copyright stuff merely because they have been digitised and kept in electronic 'libraries'. Secondly, the EU could have left the new digital power houses to their devices, namely to maintain their locks and other forms of security. In any event, that would be what the ICT corporations in the business of electronic databases and other products could have been doing.[15] Clearly, these approaches would not even scratch the thorny question of how to replicate current forms of access to analogue materials, through the fair use provisions, to be available for digital matter.

A possible solution along this line would have been to make businesses that produce digital goods to provide to the public access to their resources which originate in, and remain in large part, public domain. However, this would not be, to say the least, warmly received by database establishments and the like; nor would it be possible to enforce such a law. The truth of the matter is in as much as there is a market for such goods, private establishments would continue to produce them and keep them under lock and key, regardless of any outcry against the appropriation of the intellectual commons or such like. As Gonzalez (2005b, p.113) remarks, "The end result of this trend towards privatisation of content is that the web might become a two-tier environment, with high-content sites locked away by subscription fees, while the public web contains less valuable information… ".

This realisation may explain why the EU, faced by the dilemma of either following the US which had already stolen a march in this area of activity or imposing some form of regulatory control thereby erecting further arbitrage against its businesses opted for the former. If ever any thought of tightening a grip on locking up public

[15] As Gonzalez rightly comments, "There cannot be any doubt that companies that provide services will have a valid interest in recouping their investment by selling their content, but the result of this may be to increase the digital divide" (See, Gonzalez, 2005b, p.113). In addition, "even if the people in these countries could access the internet, almost half of them could not understand what is on the screen" (Ibid).

domain materials in electronic forms had emerged in Europe, the fear of handing over to the US all the opportunities must have dissuaded it from adopting such a path.

Curiously, even the FIC, with no ostensible vested interests to uphold, have yet to formulate this problem properly, least of all face it. In spite of their declared preference for the abolition of any proprietary basis in electronic networks and information, we have yet to learn from them how this proposal can overcome the globally entrenched interests and become operational in a day to day setting. Instead of the high flown rhetoric, however, the FIC lauds the birth of a new movement that seeks to address the problem of access in a way unconnected with overthrowing the law directly or replacing with other rules.

A further weakness of the FIC is that they do not distinguish between the needs of economies and cultures in the West from those others in Africa, Asia or Latin America. While most critics of the IP system accept the necessity of addressing the grave conditions in the 'Third World' under some form of 'preferential treatment' in the IP field, the radical view of overthrowing IP proposed by the FIC seeks to achieve that feat everywhere.

6. Conclusion

The debate concerning the impact of the digital revolution on IP in general and, conversely, the effects of an extended form of IP on the long-acknowledged technology divide between the industrial and developing nations, currently popularised by the term digital divide, has become polarised in recent years.

On the one hand, those calling for reform, if not rethink, of the IP system continues to produce mountains of arguments from a diversity of perspectives: economics, technology and innovation, science and culture, ethics and human rights. The increasingly emotive voices heard in conferences have begun to overflow to the courts and the streets across the world.

On the other hand, proponents of piecemeal adaptations of IP to the prevailing technological advances recognise no serious hurdles lie in this traditional process of legal change. They do not view any loopholes in the current law to justify a total revamp of the IP system as a whole. Indeed, some contend that the loopholes are symptoms of the failure to strengthen and extend IP beyond the parameters introduced through TRIPS and in recognition of rapid technological advances.

At the head of those who continue to push for a rapid adjustment of the current forms of IP to the digital age and beyond are the global information corporations. Even public organisations with core tasks of information archiving and diffusion such as the British Library engage in the same manner. The British Library has thus expressed, through its IP Manifesto (British Library, 2006), the urgency of closing the loopholes that have been created in copyright law since the incidence of digitisation and the Internet. One such loophole is the extent to which users might rely on 'fair use' provisions so far available to them in the non-digital context to digital works. The British Library referred to their emerging experience of licensing agreements concerning digital materials presented to them undermining such provisions. It therefore pleaded that “if unchecked, this trend will drastically reduce public access,

thus significantly undermining the strength and vitality of our creative and educational sectors – with predictable consequences for UK plc" (Ibid). It thus called for extension of "[e]xisting limitations and exceptions to copyright law...to encompass unambiguously the digital environment" (Ibid).

In the mean time, global ICT corporations continue to view the resolution of any problems attendant on their deployment of IP (such as the digital divide, unavailability of medicines, educational and cultural materials for people in developing nations) to be achievable through the traditional means of letting market forces decide.[16] They contend that only allowing the laws of competition and limiting government intervention from seeking to influence, or determine, the provision of access would have counter-productive consequences. Although bringing down the costs of ICT infrastructures through subsidies, introduction of more appropriate devices (such as the stripped down laptops or software) and deploying alternative methods, mobile phones rather than the Internet, have proved popular and effective in certain countries (Bangladesh[17]), these corporations have yet to endorse them fully. Indeed, in many cases, they oppose these measures.[18] Only international organizations, such as the ITU, have maintained a certain level of assistance in all kinds of directions (equipments, capacity building and the like).

As far as the DCs are concerned, the basic problems of literacy[19], the fact that "43 per cent of web users do not speak English at all" (Gonzales, 2005b, p.113) ultimately make any increased access to the Internet to bridge the digital divide quixotic. Moreover, as newly developed digital educational materials remain for the most part proprietary or subject to high subscription charges out of the range of, even, available government resources, nations will have to embark on a strategy of developing content domestically to fill the vacuum so created and enable entire communities to produce vitally needed materials for their cultural progress and for their schools (Ibid, p.114).

[16] Thus Chaney writes, by reference to the conditions in the US, "If the digital divide is purely a question of economics, then it won't take long for market forces to solve it. Propelled by both the profit motive and philanthropic goals, high-tech companies are bringing the benefits of technology to low-income communities at a rapid pace. Numerous studies show that Internet access is quickly spreading to the low-income population". See, Chaney, H (2000) "How the Hig-tech Sector is Bridging the 'Digital Divide'", Fall 2000, at 5; available from www.pacificresearch.org

[17] Through the concept of the 'telephone lady' offering mobile payphone services, sponsored by the Grameen Bank in Bangladesh. See, Weinstein, S & Wild, C "Closing the digital divide: who will invest in universal access?", Hertfordshire Law Journal, 4(1), 2-11, at 7-8 [no date]

[18] As Morrison explains, "In Thailand, the reality is that less than five percent of the one million people with HIV and AIDS have access to antiretroviral therapy. Multi-national pharmaceutical companies have responded by asserting that a public health policy rather than price and trade barrier is the key reason that there is limited access to affordable essential medicines for HIV and AIDS in developing countries." See, Morrison, C (2002) "Rethinking intellectual property rights: accessing essential medicines for HIV and AIDS in Thailand", Int Conf AIDS, 2002 July 7-12; 14: abstract no. G12628; available at http://gateway.nlm.nih.gov/MeetingAbstracts/102251074.html; accessed on 9 November 2007

[19] Gonzalez comments that "even if the people in these countries could access the internet, almost half of them could not understand what is on the screen" (Gonzales, 2005b, p.113).

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