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Globalization of Information: Intellectual Property Law Implications

by Kim Nayyer

Abstract

The globalization of information, facilitated by the Internet, has significant implications for intellectual property regimes domestically and internationally. Assessment of these implications and their probable outcomes is unavoidably value-driven. Many commentators foresee harmonization of intellectual property laws but some predict disparity in political economy outcomes. Some also see profound effects on sovereignty. A critical review of recent literature on these topics discloses a prevalent and rather persuasive view: that globalization of information and the impact of the Internet tend toward an international standard of strengthened intellectual property laws and the erosion of sovereignty notions, with the economic benefits flowing primarily to developed nations and transnational corporations. The prevalence of this view in the recent literature may reflect an effort to bring less heard voices to the forefront of the discussion.

Contents

Introduction

"One of the biggest mistakes one can make when considering the globalization of intellectual property law is to assume away the increasingly contentious politics of the phenomenon. This is not to say that the emerging politics of international intellectual property law are simple, easy to understand, or unchanging - quite the contrary is true. However, we should resist the understandable tendency to reach for a quick, technocratic set of Procrustean tools that assume away the 'messiness of the world' and make it seem that concepts such as 'sovereignty' and 'property' should be, are, or always have been, particularly stable constructs" (Aoki, 1998b).

An analysis of the implications of globalization of information on international and domestic intellectual property rights and legal regimes is a complex endeavour. An appropriate starting point seems to be to define the components of the issue: globalization, information, intellectual property. A review of the literature shows even this task to be complex: Different commentators bring to the analysis different ideological and epistemological stances and different academic perspectives on each of these components.

For some, globalization is a means toward strong national and international economies; for others, it represents ever greater influence of developed nations and transnational entities, along with significant changes in understandings of sovereignty. Some commentators hail the Internet and the digital environment as freeing information and promoting productivity; others decry the commodification of information seen to be occurring as a result of digital information and the ease of its transborder flow. Some view intellectual property rights as the necessary appurtenants to products of individual creativity; others consider that intellectual property rights have developed into a tool to serve economic and monopolistic interests of corporations and information-rich states; still others view them as an outmoded concept having no relevance in a digital age.

The field of international intellectual property law is itself complex. By definition, this subject is a web of innumerable domestic legal systems, as well as regional and international regimes and bilateral and multilateral treaties and agreements. As international or regional treaties or agreements are adopted or ratified, responsive or agreed changes to domestic law take place. Some argue that such domestic changes further drive changes to international or regional systems and, in turn, to domestic laws of other nations, as nations attempt to keep pace with each other.

Assuming a satisfactory understanding of the central components of the issue, further complexity is encountered in an analysis of the issue itself. Assessment of the implications of globalization and digitalization of information on intellectual property systems is also a value-laden exercise, partly driven by ideology, and not entirely free of prognostication. Some commentators hail the economic promise of new international or multilateral intellectual property agreements and philosophies prompted by a global and digital era. Others see, among the probable intellectual property consequences of globalization and digitalization of information, the offer of reward only to certain actors, notably developed nations and transnational corporations, or the information-rich.

This article does not attempt conclusive assessments or forecasts of the implications of globalization of information on international intellectual property systems. Regimes of intellectual property are not discussed in detail. What are presented are a review of some perspectives on the concepts central to the issue, an overview of the legal context, and some of the conclusions, critiques, and cautions presented in the literature. It will be suggested that the more prevalent and, perhaps, more persuasive views articulated in recent years conclude that globalization of information is reflected in globalization of intellectual property laws and strengthened protection for intellectual property rights, and

that the economic benefits of these outcomes are flowing only to certain actors on the world stage.

References are provided for further reading on points not examined or only briefly touched on. Where resources are available on the Internet, hypertext links are provided.

Central Components of the Issue

A review of the literature shows various understandings of the concepts central to the issue of the implications of globalization of information on intellectual property systems. These understandings often differ among authors, and also over time. This section is intended to explain the concepts of globalization, information, and intellectual property as they have been used in some of the literature of the last few years. This section also provides an indication of the scope within which each of these concepts is discussed and applied for the purposes of this paper.

Globalization

"Globalization means different things to different people" (Bhalla, 1998). The term is used generally to refer to a phenomenon defined or measured by flows of trade and investment between countries (Bhalla, 1998; James, 1998). McChesney has described globalization as referring to "the process whereby capitalism is increasingly constituted on a transnational basis, not only in the trade of goods and services but, even more important, in the flow of capital and the trade in currencies and financial instruments" (McChesney, 1998).

In the context of information, globalization has been used in reference to the growing ease of information flow across borders or, perhaps, without regard to borders. Cate (1998) points out that the growth of digital information both draws from and contributes to globalization: "Digital information is the ultimate example, and a significant cause, of globalization ... Information, particularly electronic information, is ubiquitous: it respects no boundaries". Geller (1998) expresses the promise and possibilities of globalization of information:

"Markets are being globally networked. Computers are releasing creation and production from the constraints of geographical space. For example, they allow writers to ready text for publishing, composers to synthesize music, and designers to shape products, all at their desk tops. Telecommunication media, like the fax and the Internet, enable teams of creators from the four corners of the earth to collaborate instantaneously across cyberspace. The World Wide Web opens up new interactive channels between creators and producers, on the one hand, and mass and specialized markets, on the other."

In the context of intellectual property, in terms of both domestic and international regimes, the term often is used in conjunction with the idea of growing harmonization of intellectual property laws and their underlying concepts. Crews (1998) describes globalization in this context thus, in relation to United States law:

"A leading force shaping United States copyright law in recent decades has been the desire to conform U.S. law to the laws of other countries where many American companies and individuals in the copyright industries frequently pursue business ... The "harmonization" of laws has brought the promise of predictability and ease of conducting business across national borders. However, this harmonization also has brought distinct change to U.S. law in ways contrary to the fundamental purposes of copyright law and its social objectives."

Geller (1998) presents another formulation of globalization in the field of intellectual property law, referring to the influence of digital information and information technology:

"Laws of intellectual property define what is bought and sold on media and technology markets, notably works, trademarks, and inventions. Laws and treaties have traditionally been made and enforced by nation-states operating in a patchwork of territories. Now, the media and technology marketplace is being globalized in digital networks. The law is only beginning to respond to this change."

Information

The characterization of information Barlow (1996) has suggested serves as the foundation for his argument that intellectual property rights, specifically copyrights, are outmoded and irrelevant in a digital age - in fact, that "everything you know about intellectual property is wrong". Barlow has this to say about how he sees the nature of information: "Information is an activity. Information is a life form. Information is a relationship." This conceptualization of information leads him to conclude that, to the extent information is considered property, information in digital form must change the nature of property and the laws developed to protect it: "In the absence of the old containers, almost everything we think we know about intellectual property is wrong. We're going to have to unlearn it. We're going to have to look at information as though we'd never seen the stuff before" (Barlow, 1996).

Leith (1997) also describes an increasing movement, in practice, in support of characterizing or treating information as a form of property, and he suggests that this movement has been carried forth into the legislative arena: "We are seeing a situation where information is becoming commodified. This commodification of information is being explicitly encouraged by various legislative bodies and property rights are being built up which, until recently, had insubstantial existence".

Sassen (1998) describes the present as an era in which some are able to use information, particularly digital information, as a source of growth in both capital and power:

"This is a particular moment in the history of digital networks, one when powerful corporate actors and high performance networks are strengthening the role of private digital space and altering the structure of public digital space, that is, the Internet. Digital space has emerged not simply as a means for communicating, but as a major new theater for capital accumulation and the operations of global capital."

Whether or not information can or should be described as property, it is clear that it is linked to the ability to accumulate wealth. The ease of information flow in the current digital environment and the increasing importance of information as the basis for wealth-generating activity are, it seems, central to the international intellectual property environment.

Intellectual property rights

In the Anglo-American legal framework, intellectual property rights generally are understood to consist in the categories of copyrights, patents, trademarks, industrial design, and trade secrets. The intellectual property rights most relevant to globalization of information issues are copyrights and patents. In this article intellectual property rights are discussed without reference to specific laws governing one or another of the categories. It will be seen, however, that frequent reference is made to copyright, as it is this area that has seen considerable activity in the domestic and international arenas. General understandings of the nature of copyright protection and a brief overview of the laws and agreements governing it are presented here.

Copyright is an intellectual property right of the author of a work, giving the author certain rights in respect of the work. These rights vary among jurisdictions but generally include the right to prevent others from copying the work, altering it, or making other than certain uses of it without permission. In jurisdictions following the Anglo-American copyright law legacy, the author holds this right by virtue of having created the work; in general, registration is not a prerequisite to holding copyright. For the period of protection, copyright in effect grants the author a monopoly on decisions relating to the work. Copyright reflects an attempt to balance incentives for creativity and production with the availability of a public domain of resources upon which future authors or creators can draw.

Possession by another of a copy of the work does not diminish the copyright of the author. However, an author can assign copyright to another; where an author is an employee, the presumption is that copyright belongs to the employer. Whether all the appurtenant rights are assignable varies, however, among jurisdictions. For example, in some jurisdictions, moral rights - those relating to alteration of the work - may be waived by the author but not assigned to another. The duration of the right also varies among jurisdictions; because copyright protection is a product of legislation, the period of protection depends on domestic legislation. Such domestic legislation generally is influenced by multilateral copyright agreements, however.

Until recently, there were two key international conventions governing copyright. The Berne Convention for the Protection of Literary and Artistic Works (Berne Convention) is administered by the World Intellectual Property Organization (WIPO) and was established in 1886 but was revised most recently in 1971. One of the key elements of the Berne Convention is the principle of national treatment. This principle requires signatory states to accord the same copyright protection to works of authors of other signatory states as they do to their own nationals. The Universal Copyright Convention (UCC), administered by the United Nations Economic Social and Cultural Organization (UNESCO), was established in 1952. The Berne Convention establishes a minimum period of copyright protection of the life of the author plus 50 years, whereas the UCC establishes a period of either the author's life plus 25 years, or 25 years after publication, whichever is applicable in the signatory state. In practice, the UCC is subordinate to the Berne Convention in respect of states that have signed both conventions.

The most recent multilateral agreement on copyright, established in 1994 in Geneva in the Uruguay Round of the General Agreement on Tariffs and Trade (GATT) negotiations, is the Trade Related Aspects of Intellectual Property (TRIPs or TRIPS) component of GATT. One of the key outcomes of TRIPs was to extend the minimum period of copyright protection by 20 years from that established by the Berne Convention, to the life of the author plus 70 years.

Another international copyright instrument was signed in Geneva in December, 1996 but is not in force. By its Article 20, the WIPO Copyright Treaty requires 30 ratifications or accessions before it can be in force; as at October 15, 2001, 28 of the 51 signatories had deposited instruments of ratification or accession (see WIPO). If it comes into force, one of the key outcomes of the WIPO Copyright Treaty will be to extend copyright protection to databases, heretofore unprotected by copyright in many jurisdictions.

In this legal framework, it is interesting to note some different perspectives on what intellectual property rights are. As noted, Barlow (1996) has expressed the view that digital information is a radical departure from information as it was previously known. His argument is that, consequently, existing ways of understanding and allocating information can no longer work:

"Intellectual property law cannot be patched, retrofitted, or expanded to contain digitized expression any more than real estate law might be revised to cover the allocation of broadcasting spectrum ... We will need to develop an entirely new set of methods as befits this entirely new set of circumstances."

There appears to be a gap in the path to Barlow's conclusion that the changing nature of information must entail radically different, if any, notions of intellectual property. Barlow's characterization of information focuses on content and ideas, rather than expression. However, the protection of information so conceived generally has not been intended to be an object of intellectual property rights. Intellectual property rights are to subsist in the work, not the content, in the expression, not the ideas or information expressed. To the extent Barlow suggests the digital form of information changes the

objects of intellectual property protection, he has not provided evidence to support the view. Gladney (2000) makes this point persuasively, commenting that Barlow's discussion "ignores that IP law does not attempt to assure payment for ideas, but rather payment for exploitation of the particular ways they are expressed, which is quite a different thing than the ideas themselves".

It seems fair to suggest that Barlow's view reflects the time it was written, when domestic and international lawmakers were involved in initiatives that, in fact, would have extended intellectual property protection to information. The White Paper discussed in the United States sought to implement intellectual property protections for databases; similar possibilities were under contemplation in Canada. Neither the U.S. Digital Millennium Copyright Act nor Canada's Copyright Act amendments ultimately extended such protection. The WIPO Copyright Treaty was forthcoming, and it in fact would extend intellectual property protection to databases (As noted, the WIPO Copyright Treaty, though agreed to in this form, is not in force). Clearly, the value in a database exists in the information itself, so such initiatives do reflect an intention to extend intellectual property to information rather than its expression.

Aoki (1998b) sees a "deep contradiction between the definition of an 'intellectual property right,' that is, a state-backed monopoly handed out to individuals or firms, and the popular neoliberal vision that valorizes 'privatization' and free market economics". Aoki considers problematic an assertion in TRIPs: "recognizing that intellectual property rights are private rights". He suggests that this is stated as though the mere assertion makes it so.

Leith (1997) questions the foundations of the "economic case for intellectual property rights", saying that there is less evidence to support this case than its advocates suggest, and he explains James Boyle's view that the concept of the author has had undeserved influence on copyright:

"For example, the case of software protection has as many economic arguments in favour of restricting protection as there are in favour of granting it. And the benefits which accrue to national economies from patent rights are notoriously difficult to quantify.
...
Boyle... argues that it is the romantic concept of 'author' which is the intellectual basis upon which a whole host of rights in information are being awarded, not just copyright. By taking raw facts or raw information or information from the public domain and adding the essence of 'authorship' is the means whereby the individual has laid claim to a wider variety of intellectual property rights than would have been allowed if the 'author' label was not claimed."

Globalization of Information, Digital Information, and Intellectual Property Law

Harmonization

One effect that seems clear is that globalization and the ease of transborder (or borderless) information flow is leading to worldwide similarities in intellectual property laws and rights.

"The global period of intellectual property is marked by a weakening, at least in relation to property, of the principles of territoriality and sovereignty... intellectual property owners are finding that the intellectual property systems around the world are beginning to converge on the same substantive standards" (Drahos, 1997).

Geller (1998) comments on the legal framework within which such harmonization is occurring and suggests a need for a coherent regime of international intellectual property law: "Digital media have unleashed deep-running changes in the international regime of intellectual property. The patchwork of nationstates can no longer respond, with its purely territorial laws, to network imperatives of interconnectivity."

As trade increases in products and services that are the subject of intellectual property protection, those holding intellectual property rights become more interested in ensuring protection of those rights outside their borders. Harmonized intellectual property regimes allow transnational corporations to internationalize the different phases of production as well as distribution and sale without jeopardizing protection of intellectual property rights. They "can locate production in various states, knowing that their intellectual property will be safeguarded" (Drahos, 1997). As well, as states enter into multilateral agreements and treaties to ensure protection of intellectual property rights outside their borders, they must modify domestic law to reflect the standards of those agreements and, often, the standards of competitor states.

Further and significantly, globalization is accompanied by increasingly strong intellectual property protection, internationally and on many regional and domestic fronts. In his review of Boyle's book, *Shamans, Software and Spleens: Law and the Construction of the Information Society,* Leith (1997) cites, as one of Boyle's conclusions, the fact of increasing intellectual property rights and the increasing power associated therewith: "It seems to be difficult to push back the hegemony of increasing intellectual property rights. Everyone is currently claiming 'a slice of the pie' and lawyers in practice are setting out ways in which even more slices can be got from a bigger pie." Leith suggests that more is coming within the reach of intellectual property laws "because people have stopped asking what intellectual property is for and whether it is doing any good."

Considering international intellectual property law changes from the U.S. perspective, Crews (1998) sums up the changes thus:

"The economic pressures and the growing international significance of copyright have led to new law. That new law is overwhelmingly in furtherance of expanding protection, easier protection, and longer protection. Moral rights, database protection, technological controls, extended copyrights, eliminated formalities, and even restored copyrights that were long in the public domain are symptoms of a legal regime of extraordinary and rapid growth."

Crews notes also that the proponents of this expansion of intellectual property protection in the U.S., in harmonization with similar changes in Europe, cite domestic economic justifications:

"For example, the extended term of protection may generate twenty more years of commercial revenue for many economically viable works. Much of that revenue may come from foreign countries where many novels, motion pictures, and other U.S. works from the early twentieth century continue to find a market. The economic argument translates not only into greater revenues for U.S. copyright holders, but also into the subsequent tax revenues, employment prospects, and shareholder profits that accompany expanded business. Moreover, if those revenues are derived from foreign markets, the strengthened protection and longer term of protection for copyrights may also help shift the balance of international trade in favor of the United States."

In contrast to the economic and domestically pragmatic arguments, Crews sees several respects in which strengthened intellectual property rights do not include a corresponding balance of the public interest. Recognizing that, in its origins, copyright law was intended to achieve a balance between preserving a public domain or commons of ideas and providing incentive for creative endeavours, he suggests the former is neglected in the trend toward the maximalist approach to intellectual property rights. For example, increased protection of necessity is accompanied by limitations on the scope of the public domain and a reduction in affordable resources available for new creators, whether individuals or corporate actors. Crews also cites potential limitations on the application of the U.S. fair use doctrine as a consequence of a focus on greater intellectual property protection. Other consequences he suggests are potential limitations on technological advancement resulting from restrictions on use, and loss of learning opportunities resulting from restrictions on dissemination or public performance of works.

Political economy and cultural or indigenous property implications

"The IMF, the World Bank, structural adjustment programmes, General Agreement on Tariffs and Trade (GATT), are just a few of the organisations, schemes, projects which under the guise of developing the Third World, plunder it. Trade agreements and commodity price-fixing, patents and intellectual property rights, they lock them into paralytic dependency" (Asian Dub Foundation, 2000).
"Central to the neoliberal vision is a strict split between the 'public sphere' (the state) and the 'private sphere' (the market), with the latter privileged and the former strictly cabined. This is an ideological claim analogous to a situation in which someone says, It's not the money, it's the principle.' However, more often than not, it is the money" (Aoki, 1998b).

Aoki (1998b) suggests that agreements such as TRIPs raise questions about international political economy, and about who in fact benefits from free trade in intellectual property:

"In particular, as between the developed nations of the North and the less developed countries of the South, increasing numbers of scholars have been questioning whether the flow of benefits of international intellectual property protection, which are part of the whole 'free trade' package, may be skewed to the advantage of the economies, cultures, and nations of the North. To the extent that the countries of the North have developed bifurcated economies with large wealth gaps between rich and poor, the concerns of the nations of the South fold into pockets of Third World-like immiseration within the First World."

Aoki's view of GATT and the TRIPs component is that the choice it put to developing nations is this:

"If you want to export your goods, agricultural and otherwise, you must protect the intellectual properties of other nations. Thus, the cotton that passes out of Malaysia at one dollar per pound returns as a t-shirt bearing the trademarked image of Mickey Mouse or Bart Simpson selling for twenty-five dollars. Under the ideological banner of 'free trade,' the intellectual property regimes of the developed nations were given expanded reach - in other words, rules that purportedly were meant to encourage and protect creative expression and scientific innovation were now put in place, giving owners the legal means to reach extraterritorially into Third World countries to prevent unauthorized use."

An example of the disparate distributional consequences of globalized intellectual property regimes Aoki describes interrelates with the different conceptualizations of cultural resources among different communities. Cultural stories and practices that are considered community property rather than property of any individual - for example, oral literatures and traditions of a Southern community - may be collected by Northern researchers. The subsequent publication and copyright of compilations of such stories and practices will be excluded from the use of their very originators. "The pattern is becoming depressingly familiar: resources flow out of the Southern regions and are transformed by Northern entrepreneurial authors and inventors into intellectual properties, which in many cases are priced so high that the people from whom such knowledge originated cannot afford to license them" (Aoki, 1998b).

Drahos (1997) also expresses this concern, providing an example arising in the patents context:

"There are also issues relating to the distributive effects of a globally harmonised intellectual property regime ... Very often new plant varieties are developed by multinational companies using germplasm which they have obtained from developing countries. The new varieties are sold back to these countries. There is, in other words, a royalty flow from South to North in relation to products that would not have been possible without the South's contribution ... Clearly, the globalisation of intellectual property rights raises equity and access issues."

Leith (1997) also propounds this view, expressing a similar outcome of globalization and strengthened intellectual property rights. He cites Boyle's concern with "the taking of medicinal knowledge from Shamans in the Amazon basin and making it proprietal to the Western drug companies without economic benefit flowing to the society from which that knowledge was derived... ."

Sovereignty implications

Some commentators see another significant consequence of globalized intellectual property regimes. They suggest that globalization of intellectual property laws is leading to an erosion of state sovereignty or, at least, "profound transformations" in our notions of sovereignty (Aoki, 1998a; Aoki, 1998b). As intellectual property increasingly becomes the subject of trade and a key component of the global (information or other) economy, international legal regimes are central to protection of intellectual property. Aoki describes the phenomenon thus: "As transnational intellectual property regimes begin setting minimum standards of protection, traditional territorial and political notions of sovereignty are eroded. This occurs in large part because entities holding increasingly large blocks of intellectual property rights are not nations, but instead are 'private' multinational corporations. The irony is that such entities must then assert the 'sovereignty' of domestic intellectual property laws to underwrite their ownership claims" (Aoki, 1998b).

Drahos (1997) expresses similar views on the sovereignty effects of globalized intellectual property laws, characterizing the developments as "a weakening, at least in relation to property, of the principles of territoriality and sovereignty." Drahos considers the impact of globalization of intellectual property from an economic perspective:

"Once such a regime is put into place, it follows that individual sovereigns are faced with restrictions on their capacity to use property rights to solve new externality problems ... One sovereign cost of a global intellectual property regime, then, relates to the loss of capacity by a sovereign to steer its economy using property rights in information and knowledge ... If it turns out that the global market in scientific and technological information becomes concentrated in terms of the ownership of that information, it might also be true that the developmental paths of individual states become more and more dependent upon the permission of those intellectual property owners who together own most of the important scientific and technical knowledge."

Sassen (1998) also describes sovereignty effects, against the backdrop of digitalization of information and globalization generally. In her view, those able to use the private information "tunnels" of encrypted information and firewalled networks, which she sees becoming a significant component of the Internet, are more able to work globalization to their advantage. Digital information and the ease and speed of information flow contribute to the power of these actors and their influence on traditional notions of sovereignty: "Over the last few years, we have seen a shift of some components of this sovereignty to other entities - supranational and sub-national as well as non-governmental

entities ... Different intermediaries may emerge, including private bodies, in arenas where public bodies used to govern ... ."

Like Sassen, Cate (1998) describes sovereignty effects of globalization of information in the context of digital information. He sees an erosion of state sovereignty occurring as a result of faster and less hindered information flow than in the past: "Digital information not only ignores national borders, but also those of States, territories, and even individual institutions ... governments are finding it increasingly difficult, and in some cases impossible, to regulate information effectively, at the very time that the economic power of information is increasing the political pressure for them to do so. The globalization of information may be rendering the traditional concept of the sovereignty of the nation-state obsolete".

Conclusion

There are different ways of understanding the issue of the implications of globalization of information on intellectual property laws, and these derive from different ways of understanding the central concepts. The literature of recent years is replete with discussion of globalization and the growth of digital information, and the influence these developments are having on domestic and international intellectual property regimes.

A clear effect of globalization of information is a trend toward harmonization or standardization of intellectual property laws, in the direction of greater protection. Whereas this trend might appear to relate to positive economic effects, the literature of recent years suggests that these effects may be positive primarily for intellectual property producing nations and transnational corporations. It may also be diminishing the sovereignty of states in favour of the strength and power of private entities. It is possible that the prevalence of such writings in the literature is a response to the movement toward harmonization and stronger intellectual property protections - an attempt to ensure some of the less heard voices are expressed.

About the Author

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Guide to Further Reading

The text of the WIPO Copyright treaty is available on the Web, along with other WIPO documents and an international collection of intellectual property legal instruments. Also maintained is a list of states from which ratifications and accessions have been received. See http://www.wipo.int/treaties/ip/copyright/index.html.

For a challenging but insightful review of globalization of intellectual property and sovereignty issues, touching on topics such as the property and sovereignty origins of the romantic author concept, public and private information production, and the political economy of globalized intellectual property, see K. Aoki, 1996. "Intellectual) property and sovereignty: Notes toward a cultural geography of authorship," *Stanford Law Review*, volume 48, number 5, pp. 1293-1355.

A more detailed discussion of the sovereignty issues reviewed here is presented in Aoki (1998a), where he puts forth another persuasive formulation of the sovereignty issue:

"At the urgings of members of the intellectual property industry, many decision makers begin opting for international intellectual property protection norms and frameworks. This contributes to the transformation and reconfiguration of national and territorial sovereignty that we are witnessing in the current period - particularly because entities holding increasingly large blocks of intellectual property rights are not nations but private multinational corporations. However, rather than positing the Internet as a threat to such

sovereigns, the rise of the Internet, as Professor Perritt points out, may represent a reinforcement of national sovereignty, albeit ironically. The irony is that such entities must then return to assertions of the sovereignty of domestic intellectual property laws to underwrite their ownership claims. Transnational corporate entities, whose fortunes are built on protecting their intellectual properties, need to turn to nation-states to ensure protection for their private rights" (See the text accompanying footnote 73).

For a more thorough discussion of globalized intellectual property law and implications for indigenous knowledge, see R.J. Coombe, 1998. "Intellectual property, human rights & sovereignty: New dilemmas in international law posed by the recognition of indigenous knowledge and the conservation of biodiversity," *Indiana Journal of Global Legal Studies*, volume 6, number 1, at http://ijgls.indiana.edu/archive/06/01/coombe.shtml.

A detailed study of the implications of the digital environment for copyright law is presented in a recent German article (translated): T. Dreier, 1997. "Copyright law and digital exploitation of works: The current copyright landscape in the age of the Internet and multimedia," (Translated by C. Thomas). Munich: Max Planck Institute for Foreign and International Patent, Copyright and Competition Law, at http://www.intellecprop.mpg.de/Enhanced/English/Veroeffentlichungen/index.htm The specific page is http://www.intellecprop.mpg.de/Online-Publikationen/dreier-Digi-Exploitation.html.

The impact of globalization and digitalization of information on enforcement or protection of copyright is not discussed here, but certainly is an issue. For an overview of the enforcement problem and some strategies to tackle it, see Geller (1998).

The recently enacted United States statute, the Digital Millennium Copyright Act, met some expectations but not others, and has important implications for the library community. For an overview of the legislation as passed in October 1998, see A.P. Lutzker, 1999. *Primer on the Digital Millennium: What the Digital Millennium Copyright Act and the Copyright Term Extension Act Means for the Library Community.* Washington: Association of Research Libraries, at http://www.arl.org/info/frn/copy/primer.html.

For a discussion of copyright protection and digital information from an author's perspective, see C.C. Mann, 1998. "Who will own your next good idea?" *Atlantic Monthly*, volume 282, number 3 (September), pp. 57-82, and at http://www.theatlantic.com/issues/98sep/copy.htm.

Issues relating to cultural or indigenous property implications of globalized intellectual property have centred on copyright in this paper. For a discussion of similar issues in the context of patents, see S.J. Patel, 1996. "Can the intellectual property rights system serve the interests of indigenous knowledge?" In: S.B. Brush and D. Stabinsky (editors). *Valuing local knowledge: Indigenous people and intellectual property rights.* Washington, D.C.: Island Press, pp. 305-321.

For a review of the impact of the Internet on Canadian copyright law and international copyright law from the Canadian perspective, see A. Pollock, no date. "Canadian copyright and the Internet," at http://www.ampksoft.ca/compoly.htm.

The changes made to Canadian copyright law by Bill C-42 were preceded by much discussion about the implications of digital information and information technology and how they should be reflected in copyright law. One of the papers presented during that period gives a good summary of Canadian copyright principles and the impact of the digital environment. See D. Vaver, 1995. "Rejuvenating copyright, digitally. In Symposium on Digital Technology and Copyright," Ottawa: Department of Justice,at http://canada.justice.gc.ca/en/news/conf/archives.html, the Canadian Department of Justice Conference and Events archives, via the link to "Symposium on Digital Technologies and Copyright".

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