

Does Technology Trump Intellectual Property?: Not Regulation but Governance of New Technologies

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Abstract

Does technology trump intellectual property rights (IPR)? In the Metro-Goldwyn-Mayer Studios v Grokster case, Justice Breyer believes this to be so. This article will analyse whether Justice Breyer's belief has valid legal and empirical bases in light of the different cases and legislations that seek to resolve the challenges brought about by new technologies vis-à-vis IPRs. This article argues that, while the proposition that "law favours technology over IPRs" is more or less true, it requires further qualification and contextualisation in order to prevent one from falling into the traps of technological determinism and instrumentalism. What is required is a re-conceptualisation of what regulation of technology means and entails within the inter-networked society. Drawing upon broader law and technology theories, this article argues that there is a need to shift the focus of the inquiry from regulation to governance since the conflict between technology and IP does not merely concern how technologies are controlled but, more importantly, how the global information society is governed.

1. Collision Between Technology and Intellectual Property

Tensions arising from the introduction and use of emerging technologies and the protection of intellectual property rights (IPRs) are not new. In fact, the concept of intellectual property (IP) as it is known today originated from and was a response to the disruptive technology of the printing press.¹ What is noteworthy is that conflicts between information and communications technology (ICT) and IP are increasing and becoming more pronounced over the last two decades especially with the growing use of the Internet as a transnational communications medium. For those who belong to the ICT field, there is a common concern that the pendulum of regulatory solicitude has swung too far in favour of IPRs, and that technological innovations are being severely curtailed by the encroachment of overly broad and pervasive IP laws.² With the numerous attempts by IPRs owners to call for protection through legislative, judicial or technological means at the first sight of new technologies that threaten their traditional ways of doing things,³ there is a sentiment within the ICT community that technology *per se* is distinct from and should not be beholden to IP laws, and, in case of conflicts, technology should be favoured over IPRs. This belief finds support in Justice Breyer's opinion in the *Metro-Goldwyn-Mayer Studios v Grokster*⁴ case where he

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¹ *Sony Corporation v Universal City Studios* (1984) 464 U.S. 417, 430 (henceforth *Sony*); see J Reichman and J Franklin, "Privately Legislated Intellectual Property Rights: Reconciling Freedom of Contract with Public Good Uses of Information" (1999) 147 U. Pa. L. Rev. 875; see N Lucchi, "The supremacy of techno-governance: Privatization of digital content and consumer protection in the globalized information society" (2007) 15 I.J.L. & I.T. 192, at 200.

² J Wiener, "The regulation of technology, and the technology of regulation" (2004) 26 *Technology in Society* 483, at 486.

³ J Ginsburg, "Copyright and Control Over New Technologies of Dissemination" (2001) 101 *Columbia Law Review* 1613, at 1614.

⁴ *Metro-Goldwyn-Mayer Studios v Grokster* (2005) 545 U.S. 913 (henceforth *Grokster*).

says that when there is a clash between technology and IP, the law "leans in favour of protecting technologies".⁵ This article will analyse whether Justice Breyer's statement has valid legal and empirical grounds in light of the different legal responses - in the form of case law and legislations - that seek to resolve the challenges brought about by new technologies vis-à-vis IPRs. This article argues that, while the proposition that "law favors technology over IPRs" is more or less true, it requires further qualification and contextualisation in order to prevent one from falling into the traps of, on one extreme, technological determinism (the liberal belief that technology cannot and should not be regulated) and, on the other end, instrumentalism (the assumption that technology is completely subject to human agency). What is demanded is a re-conceptualisation of what regulation of technology means and entails within complex, inter-networked and computer-mediated societies. Drawing upon broader law and technology theories, this article argues that there is a need to shift the focus of the inquiry from regulation to governance since the issues between technology and IP do not merely concern how technologies are controlled but, more importantly, how the global information society is governed. Part II of this article analyses the major court decisions involving technology and IP and observes an apparent deference by the courts toward technology. Part III examines the lack of success of recent techno-centric legislations. Part IV discusses why the apparent legal deference towards technology deserves qualification and how law and technology studies can help contextualise the problem of technological regulation. Part V concludes with a suggestion for a hybrid, socio-techno-legal approach to resolving tensions that arise between technology and IP.

2. Judicial Response

2.1. *Advancing a techno-legal approach*

There are a number of technology-IP conflicts that have been brought before the courts. It is worth noting that these court cases are generally considered to be IP law decisions rather than technology ones.⁶ While these cases have a strong technological dimension, the courts' discussions mainly revolve around IP law issues such as contributory infringement, authorisation and fair use, and invariably the central concern of the courts is striking the right balance in the intellectual property bargain.⁷ This is not surprising given that the plaintiffs in these cases are IPRs holders who are resorting to IP principles to bring technological developments under the thumb of IPRs. Much of the discourse then has been about IP, with technology being a mere peripheral concern.

However, despite the great reliance by courts on IP laws, judges and judicial bodies across different jurisdictions have a strikingly uniform response to the conflicts between technology and IP - they frequently rule in favour of promoting technological development over the increased protection of IPRs. In her review of US jurisprudence in this area, Ginsburg comes to a similar conclusion - "a review of past confrontations between copyright and new technological means of dissemination suggests that courts often are reluctant to restrain public availability of new technologies, even when those technologies appear principally designed to exploit copyrighted works".⁸ In order to better understand this general reluctance

⁵ *Ibid*, at 960.

⁶ See P Akester, "Copyright and the P2P challenge" (2005) 27 E.I.P.R. 106.

⁷ R Nimmer, "Breaking Barriers: The Relations Between Contract and Intellectual Property Law" (1998) 13 Berkeley Tech. L.J. 827, at 830; Ginsburg, see note 3 above, at 1613; see J Reichman, "Legal Hybrids between the Patent and Copyright Paradigms" (1994) 94 Columbia Law Review 2432, at 2437 and 2503.

⁸ J Ginsburg, see note 3 above, at 1616.

on the part of courts to interfere with the development of new technologies, the author believes that it is necessary to go beyond the confines of IP law and to approach these information society problems from the distinct paradigm of technology law. The key then for a more extensive analysis of the tensions between technology and IP requires focusing on the technological dimension of these conflicts rather than the IP issues alone. This paper argues that once one escapes from an IP-centralist mindset, the frequent outcome of courts refusing to control technological development ceases to be a mere IP law problem that can be solved through the adoption of new IP-maximalist legislations. Instead, these cases reveal a complex interplay among plural social actors and the competing legal, socio-economic and technological interests and values within the global information society. Viewed in this light, a techno-legal approach may prove to be more illuminating and useful than a strictly IP-based one in addressing the multiple challenges brought about by new technologies.

2.2. Deference towards technology

Viewed from the broader context of law and technology, the landmark cases of *CBS Songs v Amstrad Consumer Electronics*,⁹ *Sony Corporation v Universal City Studio*,¹⁰ and *MGM v Grokster* offer valuable judicial insights about the relationship between technology and IP as well as provide guidance on technological regulation within the inter-networked society. In the *CBS Songs* case, which involved an attempt by the British music recording industry to block the distribution of double-speed, twin-deck tape recorders in the 1980s, the UK House of Lords was cognisant of the complimentary and interdependent relationship between technology and IP.¹¹ When asked to prohibit the use of a new technology, Lord Templeman ruled that "There is nothing express or implied in the [copyright law] which inhibits the invention, manufacture, sale or advertisement of electronic equipment capable of lawful or unlawful reproduction".¹² When considering the value of technology in relation to IPRs, the House of Lords was more emphatic: "The rights of B.P.I. are derived from statute and not from the Ten Commandments. Those rights are defined by Parliament, not by the clergy or the judiciary. The rights of B.P.I. conferred by the Act of 1956 are in no way superior or inferior to any other legal rights".¹³ In explaining its reluctance to regulate technology, Lord Templeman held that it is the legislature and not the courts that has the authority to place restraints on technology.¹⁴

Similarly, in *Sony*, the US Federal Supreme Court ruled that "there is no basis in the Copyright Act upon which respondents can hold petitioners liable for distributing [video cassette recorders (VCRs)] to the general public".¹⁵ The Court explained that:

The judiciary's reluctance to expand the protections afforded by copyright without explicit legislative guidance is a recurring theme. Sound policy, as well as history, supports our consistent deference to Congress when major technological innovations alter the market for copyrighted materials. Congress has the constitutional authority and the institutional ability to accommodate

⁹ *C.B.S. Songs Ltd. v Amstrad Consumer Electronics* (1988) 2 W.L.R. 1191 (henceforth *CBS Songs*)

¹⁰ *Sony*, see note 1 above.

¹¹ *CBS Songs*, see note 9 above, at 1045-1046.

¹² *CBS Songs*, see note 9 above, at 1052.

¹³ *CBS Songs*, see note 9 above, at 1057.

¹⁴ *CBS Songs*, see note 9 above, at 1061.

¹⁵ *Sony*, see note 1 above, at 421.

fully the varied permutations of competing interests that are inevitably implicated by such new technology.¹⁶

Like other courts faced with the same conundrum of regulating technology for the sake of protecting IPRs, the Court balked at the idea because to do so would be tantamount to making technologies such as VCRs akin to contraband.¹⁷ In crafting the standard of "capable of substantial non-infringing use",¹⁸ it seems the Court was applying a commonsensical and liberal approach to regulation that finds it difficult from a public policy standpoint to impose restrictions on the free development of technology. Clearly, courts such as the one in *Sony* are working under the assumption of the "neutrality of technology"¹⁹ - where it is not the technologies themselves but how people use them which are the proper subjects of control.

In the other landmark US case of *Grokster*, which involved online peer-to-peer (P2P) file-sharing technologies, the Court found issue not with P2P technology itself but with how it was being unlawfully used.²⁰ The Court wanted to clearly distinguish "between the uses of *Grokster*'s and *Streamcast*'s software products (which this case is about) and uses of peer-to-peer technology generally (which this case is not about)".²¹ The Court is very careful in highlighting this distinction because,

We are, of course, mindful of the need to keep from trenching on regular commerce or discouraging the development of technologies with lawful and unlawful potential.... The inducement rule, instead, premises liability on purposeful, culpable expression and conduct, and this does nothing to compromise legitimate commerce or discourage innovation having a lawful promise.²²

In the earlier P2P file-sharing case of *Napster*,²³ the Court made a similar qualification, "We are compelled to make a clear distinction between the architecture of the *Napster* system and *Napster*'s conduct in relation to the operational capacity of the system".²⁴ For Ginsburg, *Napster* is "best understood as an attempt to tame a new technology into copyright friendliness, rather than as an endeavour to suppress it altogether".²⁵ This distinction between technology and its potentially unlawful uses needs to be kept in mind especially when considering other cases where the courts seem to be privileging IPRs over technology.²⁶ Reading these cases carefully in light of the distinction, it becomes readily apparent that what is being declared unlawful is not the technology *per se* but the illegal use thereof. Similar to the rulings in *CBS Songs* and *Grokster*, the Court in *Sony* was unwilling to protect IPRs at the expense of technological advancement because that "would enlarge the scope of respondents'

¹⁶ *Sony*, see note 1 above, at 431.

¹⁷ *Sony*, see note 1 above, at 441.

¹⁸ *Sony*, see note 1 above, at 789.

¹⁹ This is different from the concept of technological neutrality. See B Koops and others (eds), *Starting Points for ICT Regulation: Deconstructing Prevalent Policy One-Liners* (The Hague: TMC Asser Press, 2006) at 77.

²⁰ *Grokster*, see note 4 above, at 937.

²¹ *Grokster*, see note 4 above, at 948; see J Ginsburg and Ricketson, "Inducers and Authorisers: A Comparison of the US Supreme Court's *Grokster* decision and the Australian Federal Court's *KaZaa* ruling" (2006) 11 *Media & Arts Law Review* 1, at 6.

²² *Grokster*, see note 4 above, at 937.

²³ *A&M Records, Inc. v Napster, Inc.* 2002 U.S. App. LEXIS 4752 (henceforth *Napster*)

²⁴ *Napster*, see note 23 above, at 1020.

²⁵ J Ginsburg, see note 3 above, at 1638 and 1641-1642.

²⁶ See P Akester, see note 6 above; J Ginsburg, , see note 4 above, at 1638.

statutory monopolies to encompass control over an article of commerce that is not the subject of copyright protection. Such an expansion of the copyright privilege is beyond the limits of the grants authorized by Congress".²⁷

In his concurring opinion in *Grokster*, Justice Breyer provides a thorough exposition of the relationship between technology and IPRs, and what the judiciary's response should be when conflicts between the two arise. Justice Breyer's explanation is illuminating because he elucidates the underlying legal bases and public policy rationales for the judicial preference for technology, which are normally left unsaid and often obscured by the inordinate attention given to the IP law aspects of these cases. He takes note of the public policy against *ex ante* regulation of technology because it may "chill technological development".²⁸ In the *Sony rule*, Justice Breyer recognises that courts have a responsibility to be "strongly technology protecting",²⁹ and the "innovation-protecting objective"³⁰ of judicial rulings are a matter of vital public interest. Affirming the notion of neutrality of technology, he explains that "*Sony's* standard seeks to protect not the Groksters of this world... but the development of technology more generally".³¹ Similarly, by emphasising the *Sony rule's* forward looking nature, he affirms the important ICT principle of technological neutrality.³² Justice Breyer comes to a radical conclusion that is repeatedly implied but has never been explicitly verbalised by other courts faced with the same dilemma - i.e., in case of conflicts between technology and IP, the law "leans in favour of protecting technology".³³ This observation confirms the general solicitude that courts have for nascent technologies - "copyright laws are not intended to discourage or to control the emergence of new technologies".³⁴

Despite the apparent deference by courts toward technology, Justice Breyer is mindful that resolving the tensions between technology and IP also involves public policy issues that principally fall within the competence of legislatures.³⁵ As Ginsburg points out, "when courts have curtailed the scope of copyright protection, Congress often has stepped in to assure copyright owners some form of compensation from the new means of exploitation - if not always control over it."³⁶

3. Legislative Response

3.1. Techno-centric legislation

²⁷ *Sony*, see note 1 above, at 421, 429 and 456.

²⁸ *Grokster*, see note 4 above, at 957 and 960.

²⁹ *Grokster*, see note 4 above, at 957.

³⁰ *Grokster*, see note 4 above, at 959.

³¹ *Grokster*, see note 4 above, at 955.

³² *Grokster*, see note 4 above, at 958; see C Reed, "Taking Sides on Technology Neutrality" (2007) 4:3 SCRIPT-ed 263 available at <http://www.law.ed.ac.uk/ahrc/script-ed/vol4-3/reed.asp> (accessed 16 April 2009).

³³ *Grokster*, see note 4 above, at 960; see J Ginsburg and S Ricketson, see note 21 above, at 7; but see J Ginsburg, see note 3 above, at 1617 and 1619 (she makes a distinction between those cases where the IP owners try to eliminate technology and those where they participate in it - in the first class they fail but in the second they succeed).

³⁴ *Grokster*, see note 4 above, at 957; J Ginsburg, see note 3 above, at 1616, 1619, 1623 and 1626 (see the piano rolls, cable television and portable MP3 player cases)

³⁵ *Grokster*, see note 4 above, at 965.

³⁶ J Ginsburg, see note 3 above, at 1616 and 1626.

Time and again, legislatures have been called upon to resolve problems that arise due to technological advances.³⁷ Lawmakers generally aim to ease the tensions between technology and IP by recalibrating the delicate IP balance through statutory (mainly IP) enactments.³⁸ In the past, striking a balance was more straightforward because the subjects of regulation have generally been distinct commercial actors operating within specific physical locations, and there were technical limitations in the technologies themselves that did not require fundamental changes to IP laws or extensive technological regulation.³⁹ Historically, "law more rarely attempts to direct technological change due to the view that markets do a better job, in the absence of market failure, at determining which technologies will be adopted".⁴⁰ But with the challenges and complexities brought about by rapid digitisation, convergence and use of global communications networks over the last two decades, attempts by legislatures to preserve the IP bargain have a tendency to spill over outside the IP realm, and has resulted in laws that seek an *ex ante* control of technologies *per se*. Not only are the technology-focused provisions of the US Audio Home Recording Act of 1992 (AHRA), the WIPO Copyright Treaty (WCT),⁴¹ the US Digital Millennium Copyright Act of 1998 (DMCA), and the European Directive on the harmonisation of certain aspects of copyright and related rights in the information society (InfoSoc Directive),⁴² legally and democratically problematic, but they have proven to be ill-conceived regulatory tragedies.⁴³ These laws have not only failed to achieve the right private-public balance within the IP context but they have also impeded technological development, competition and market innovation.⁴⁴

With the advent of digital audio recording devices, particularly the Digital Audio Tape (DAT) format, the AHRA was a pre-emptive response by the US Congress to preserve the IP balance.⁴⁵ The AHRA required the implementation of the Serial Copy Management System (SCMS) in all devices and made the circumvention of the SCMS illegal.⁴⁶ SCMS is a copy protection measure that permitted users to make one digital copy but imposed a technological restriction that prevented second generation copying. The AHRA was significant because "for the first time, Congress reinforced exclusive legal rights by providing for technological measures to protect those rights, and then by granting additional legal protection to those technological measures".⁴⁷ At the time of its adoption, the AHRA was seen as an innovative and significant legal response to the threat posed by digital recording technologies to IPRs especially since it came about through the cooperation of the content and technology

³⁷ See J Litman, *Digital Copyright* (New York: Prometheus Books, 2001) at 36; see L Lessig, *The Future of Ideas: The Fate of the Commons in a Connected World* (New York: Vintage Books, 2002) at 181.

³⁸ See J Ginsburg, see note 3 above, at 1614.

³⁹ I Brown, "The Evolution of Anti-Circumvention" (2006) 20 *International Review of Law Computers & Technology* 239, at 243; see J Litman, see note 37 above, at 36.

⁴⁰ A Cockfield, "Towards a Law and Technology Theory" (2004) 30 *Manitoba Law Journal* 383, at 407.

⁴¹ 20 December 1996.

⁴² Directive 2001/29/EC (22 May 2001) on the harmonisation of certain aspects of copyright and related rights in the information society OJ 2001 L167/10.

⁴³ See G Dinwoodie, "Private Ordering and the Creation of International Copyright Norms: The Role of Public Structuring" (2004) 160 (1) *Journal of Institutional and Theoretical Economics*, at 2-3.

⁴⁴ N Lucchi, see note 1 above, at 224; P Akester and R Akester "Digital rights management in the 21st century" (2006) 28 *E.I.P.R.* 159, at 165; M Favale, "Fine-tuning European copyright law to strike a balance between the rights of owners and users" (2008) 33 *E.L. Rev.* 687, at 696 and 707.

⁴⁵ S Elkman and A Christie, "A Negotiated Solution to Audio Home Recordings?: Lessons from the US *Audio Home Recording Act of 1992*" (2004) 27 *U.N.S.W.L.J.* 123, at 127.

⁴⁶ J Ginsburg, see note 3 above, at 1628; I Gonzalez, "Recording Industry Association of America, Inc. v. Diamond Multimedia Systems, Inc." (2000) 15 *Berk. Tech. L.J.* 67, at 69.

⁴⁷ J Ginsburg, see note 3 above, at 1628.

industries.⁴⁸ However, in the immediately succeeding years after the AHRA's enactment, the problems of large-scale digital piracy that the AHRA was meant to address never came pass because the DAT format was not widely adopted by consumers and it did not become a mass-market product as anticipated.⁴⁹ In hindsight, it may be said that in addition to other factors, the copy protection measures built into DAT devices proved to their own commercial undoing.⁵⁰ Furthermore, when the AHRA faced its first real test - when the US music recording industry sought to curtail the sales of portable MP3 players in the *RIAA v. Diamond Rio case*⁵¹ - the legislative solution embodied in the AHRA was judged by the court to be inapplicable and inappropriate.⁵² The AHRA proved to be a failed legislative response to the challenges of new technologies because not only did it seek to control the technology itself rather than its specific uses, but it was adopted *ex ante* when no real conflicts had yet arisen.

3.2. Anti-circumvention legislation

A similar critique can be made of the technological protection measures (TPM)⁵³ provisions contained in the WCT and its legislative progeny - the US DMCA and the European InfoSoc Directive.⁵⁴ The WCT's anti-circumvention provisions have two principal aims: to prohibit the act of circumvention of any TPMs and to restrict the dissemination of circumvention technologies and information.⁵⁵ Despite its controversial origins and problematic implementation on both the international and national levels,⁵⁶ the WCT was initially trumpeted as a significant, future-oriented international legislation that similarly foresees and secures the development of a global digital content economy.⁵⁷ However, experience over the last 13 years with various TPMs such as digital rights management (DRM) has proven quite the opposite. DRM has by and large proven to be not only technically unworkable because it is easily cracked,⁵⁸ but also a commercial flop and a public relations debacle for content owners and media providers that sought to implement them.⁵⁹ Ironically, the content and media industries, which successfully lobbied for the grant of legal protection against technological circumvention, are abandoning DRM. The general trend now is for digital content to be distributed sans DRM.⁶⁰ On top of being a technological and market failure, DRM has equally proven to be detrimental to socio-legal concerns such as "freedom of expression, privacy, competition law, academic research and consumer protection".⁶¹ The Electronic Frontier Foundation found that the DMCA has had a negative effect on free

⁴⁸ J Cunard, "Past as Precedent: Some Thoughts on Novel Approaches to the Nexus of Digital Technologies and the Arts" (1996) 29 *Leonardo* 245, at 247; J Litman, see note 37 above, at 36; S Elkman, see note 45 above, at 128-129.

⁴⁹ S Biegel, *Beyond Our Control?: Confronting the Limits of Our Legal System in the Age of Cyberspace* (Massachusetts: MIT Press, 2001) at 301.

⁵⁰ J Litman, see note 37 above, at 60; see S Elkman, see note 45 above, at 146.

⁵¹ *Recording Industry Association of America v. Diamond Multimedia Systems*, 180 F.3d 1072 (9th Cir. 1999).

⁵² I Gonzalez, see note 46 above, at 77.

⁵³ I Brown, see note 39 above, at 239.

⁵⁴ I Brown, see note 39 above, at 245.

⁵⁵ J Ginsburg, see note 3 above, at 1631; I Brown, see note 39 above, at 246.

⁵⁶ See I Brown, see note 39 above, at 240-243; see T Rychlicki, "An opinion on legal regulations on reverse engineering and technological protections measures" (2007) 13 *C.T.L.R.* 94, at 95.

⁵⁷ S Von Lewinski and J Reinbothe, "The WIPO Treaties 1996: ready to come into force" (2002) 24 *E.I.P.R.* 199, at 208; see M Favale, see note 44 above, at 689.

⁵⁸ P Akester and R Akester, see note 44 above, at 164 (the DVD's DeCSS encryption code was easily cracked).

⁵⁹ I Brown, see note 39 above, at 255.

⁶⁰ See DRM.info available at <http://drm.info/> (accessed 15 April 2009).

⁶¹ I Brown, see note 39 above, at 240; see P Akester and R Akester, see note 44 above, at 165; see M Favale, see note 44 above, at 688 (DRM creates access rights)

expression and scientific research, fair use, competition and innovation, and security testing.⁶² In fact, in a number of DRM-related cases in the US, companies are utilising the DMCA not to protect their copyrights but to restrict competition.⁶³ It is no wonder then that DRM has been vilified in the eyes of consumers and is the target of widespread online and offline campaigns.⁶⁴

The abject failure of anti-circumvention legislations such as the DMCA may be partially explained by the fact that it regulates *ex ante*.⁶⁵ According to Ginsburg, "Congress in the DMCA thus varied its pattern of response to new technology challenges by anticipating that online access would supplant old forms of distribution, rather than waiting to readjust the balance *ex post*".⁶⁶ Furthermore, by regulating the technologies themselves, these laws have a tendency to preserve the status quo where "the owners of older technology are trying to block the way to what they see as a threat, thus failing to look for ways to cooperate with or even co-opt the new technology".⁶⁷ These legislative responses have tended to artificially delay but never turn back the social and economic changes brought about by technological advances.⁶⁸

4. Regulating the Technological Society

4.1. Avoiding technological determinism and instrumentalism

On the face of it, the lack of success of different legislative responses to technology seems to support Justice Breyer's call for legal deference towards technology. It may be argued that lawmakers around the world could have saved themselves the aggravation and avoided the folly of attempting an *ex ante* control of technology *per se* by simply heeding Justice Breyer's admonition to respect the freedom of technological innovation.⁶⁹ Nevertheless, despite what the above judicial and legislative responses to the conflicts between technology and IP seem to imply, one should take care not to come to hasty generalisations that technology cannot or should not be regulated, or that technological progress is always good and should remain unimpeded.⁷⁰ In spite of the commonly held assumption of the neutrality of technology, technology is never truly neutral because it is inherently charged with crucial social and cultural values and other public interest concerns.⁷¹ As Ginsburg says,

⁶² Electronic Frontier Foundation, "Unintended Consequences: Ten Years under the DMCA" available at <http://www.eff.org/files/DMCAUnintended10.pdf> (accessed 15 April 2009); but see B Sookman, "Technological protection measures (TPMs) and copyright protection: the case for TPMs" (2005) 11 C.T.L.R. 143 (for an opposing view).

⁶³ See I Brown, see note 39 above, at 249-250.

⁶⁴ I Brown, see note 39 above, at 255-256; see DefectiveByDesign available at <http://www.defectivebydesign.org/> (accessed 9 April 2009); P Akester and R Akester, see note 44 above, at 165.

⁶⁵ Ginsburg, see note 3 above, at 1631.

⁶⁶ Ginsburg, see note 3 above, at 1634.

⁶⁷ N Lucchi, "Intellectual Property Rights in Digital Media: A Comparative Analysis of Legal Protection, Technological Measures and New Business Models Under E.U. And U.S. Law" (2005) 71 available at <http://ssrn.com/abstract=723321> (accessed 15 April 2009).

⁶⁸ N Lucchi, see note 67, at 71.

⁶⁹ See J Chandler, "The Autonomy of Technology: Do courts control technology or do they just legitimize its social acceptance" 6 and 12 available at <http://ssrn.com/abstract=993169> (accessed 15 April 2009); see L Moses, "Understanding Legal Responses to Technological Change: The Example of *In Vitro* Fertilization" (2005) 6 Minn. J. L. Sci. & Tech. 505, at 508 and 617.

⁷⁰ J Wiener, see note 2, at 488; A Murray, *The Regulation of Cyberspace: Control in the Online Environment* (Abingdon: Routledge-Cavendish, 2007) at 53.

⁷¹ M Tiles and H Oberdiek, *Living in a Technological Culture: Human Tools and Human Values* (London: Routledge, 1995) at 54; see J Young, "Surfing While Muslim: Privacy, Freedom of Expression and the

In fact, the judicial and legislative resolution of tensions between the exercise of control under copyright on the one hand and the availability of new technology on the other is far more nuanced, and notwithstanding current critiques, supports a continued role for control in a new technological environment.⁷²

To believe that technology cannot be regulated is to fall into the trap of technological determinism,⁷³ which is founded on two main premises: "(1) that the technological base of a society is the fundamental condition affecting all patterns of social existence and (2) that changes in technology are the single most important source of change in society".⁷⁴ A technological determinist worldview is problematic because it fails to take into account the "limitations of the technology itself, social adaptation of the technology, or problems inherent in the vision itself".⁷⁵ But, as is shown in the above analysis of the different legislative responses to new technologies, the polar opposite view of instrumentalism, which is the belief that technology is subject to human agency and control, is also fraught with trouble.⁷⁶

The author believes that a way out of this policy deadlock between technological determinism and instrumentalism will not be found in resorting to the proverbial (yet severely compromised) middle ground. What is needed is a re-conception of what regulation of technology means within the global information society. This necessitates going beyond the basic concerns of "how law affects technology" or "how technology affects law", and actually perceiving how the interactions between law and technology are embedded within society.

4.2. Learning from law and technology studies

It is often overlooked that there are a lot more cases involving the regulation of technology that do not involve an IP element⁷⁷ The area of law and technology provides various insights to the problem of new technologies. As Mandel explains, "studying how prior law and technology issues were handled, and particularly how they were sometimes mishandled, provides valuable lessons for responding to current and future law and technology issues as they arise".⁷⁸

Drawing from the history of the telegraph and the Internet, one important lesson is that

Unintended Consequences of Cybercrime Legislation - A Critical Analysis of the Council of Europe Convention on Cybercrime and the Canadian Lawful Access Proposal" (2004-2005) 7 Yale J. L. & Tech. 346, at 409.

⁷² J Ginsburg, see note 3 above, at 1616-1617.

⁷³ F Bar, J Richards and C Sandvig, "The Jeffersonian Syndrome: The Predictable Misperception of the Internet's Boon to Commerce, Politics, and Community" March 2000 available at <http://www-ref.usc.edu/~fbar/Publications/jeffersonian-syndrome.PDF> (accessed 15 April 2009); A Murray, see note 70 above, at 42; see J Chandler, see note 69 above, at 3.

⁷⁴ L Winner, *Autonomous Technology: Technics-out-of-Control as a Theme in Political Thought* (Massachusetts: MIT Press, 1977) at 76.

⁷⁵ M Elliot and W Scacchi, "Mobilization of software developers: the free software movement" (2008) 21 Information Technology & People 4, at 9-10.

⁷⁶ J Griffiths, "What is Legal Pluralism" (1986) 24 J. Legal Pluralism & Unofficial L. 2, at 29; A Murray, see note 70 above, at 46; see A Cockfield, see note 40 above, at 399; see A Cockfield and J Pridmore, "A Synthetic Theory of Law and Technology" (2007) 8 Minn. J. L. Sci. & Tech. 475, at 480.

⁷⁷ See J Wiener, see note 2 above, at 483; see S Jasanoff, *Science at the Bar: Law, Science, and Technology in America* (Massachusetts: Harvard University Press, 1995) at 15-19.

⁷⁸ G Mandel, "History Lessons for a General Theory of Law and Technology" (2007) 8 Minn. J. L. Sci. & Tech. 551, at 552.

a decision-maker must be careful when compartmentalizing a new law and technology issue into a preexisting category.... But, where the new issue arises as a result of technological change, the old categories may no longer apply. In order to handle a new technology issue, one often must delve deeper, into the basis for the existing system of legal categorization.⁷⁹

The *Diamond Rio* case is a prime example of the courts refusing to apply the old category of "digital audio recording devices" to a category-busting technology, and protecting a portable MP3 player's place-shifting capabilities under the fair use doctrine by properly drawing an analogy to the time-shifting principle in *Sony*.⁸⁰ Another key learning, which is taken from the experience with fingerprint and DNA evidence, is for decision-makers not to be blinded by technology.⁸¹ As shown in the swarm of file-sharing cases, courts have generally fared well in overcoming the novel legal and technological challenges of P2P networks and maintaining the balance between technological innovation and IP protection by prohibiting the illegal use of P2P rather than the technology itself. It is also best for legislatures and courts to bear in mind another lesson learned from the biotechnology and nanotechnology fields - law and technology disputes are unforeseeable and cannot be predicted with absolute certainty.⁸² In the context of technology and IP, this is perfectly illustrated in the case of anti-circumvention laws that came too early and, without actual conflicts to resolve at the time of their enactment, applied too broadly.

4.3. Focusing on social actors within the information society

While there is much to learn from a broader law and technology approach to conflicts between technology and IP, one should also take care not to fall back into instrumentalism. While potentially useful, concepts such as "code is law"⁸³ and "technology as law"⁸⁴ have a tendency to trap people within a instrumentalist mindset that sees technological architecture as a mere regulatory variable that can be easily manipulated and controlled.⁸⁵ This instrumentalist capture regularly occurs because the essential social dimension of the law and technology interface is often neglected. What is demanded then is a more actor-oriented and network-based approach to law and technology that focuses on social actors and the dynamic network of interactions that exist among them.⁸⁶

Law therefore should not "be seen in isolation: it is part of a wider community of social sciences".⁸⁷ There is already a growing body of research that studies techno-legal phenomena from the perspective of the social sciences. For example, Murray has come a long way in

⁷⁹ G Mandel, see note 78 above, at 553.

⁸⁰ See *Diamond*, see note 51 above.

⁸¹ G Mandel, see note 78 above, at 560.

⁸² G Mandel, see note 78 above, at 563; J Wiener, see note 2 above, at 486 and 496.

⁸³ See L Lessig, *Code: version 2.0* (New York: Basic Books, 2006).

⁸⁴ J Reidenberg, "Lex Informatica: The Formulation of Information Policy Rules Through Technology" (1997-1998) 76 Tex. L. Rev. 553, at 553-554; J Wiener, see note 2 above, at 484; see A Cockfield, see note 40 above, at 406.

⁸⁵ D Kostakopoulou, "Floating sovereignty: a pathology or a necessary means of state evolution?" (2002) 22 O.J.L.S. 135, at 138; see J King, "The pervasiveness of polycentricity" [2008] P.L. Spr, 101-124.

⁸⁶ See S Merry, "Legal Pluralism" (1988) 22 Law & Society Review 869, at 871; see A Murray, see note 70 above, at 13 and 18; see A Cockfield, see note 40 above, at 409.

⁸⁷ A Murray, see note 70 above, at 18-19.

developing what he calls "socio-technological-legal theory".⁸⁸ Drawing upon Luhmann's autopoietic social systems and principles of systems dynamics, he conceives of the concept of "symbiotic regulation" where "the best regulatory model is not one built upon an active intervention into the settled regulatory environment, the result of which is likely to be extremely disruptive, rather it is one that harnesses, as best as possible, the relationship already in place between the actors".⁸⁹ For regulation to be effective, it must compliment rather than disrupt the interactions among the network actors because what is being regulated are not static actors in a social vacuum but active subjects who are part of "complex systems, layers and regulatory webs".⁹⁰ Murray cites the *Sony* case as a notable example of symbiotic regulation where the court, instead of restricting a new technology, properly deferred to a market-led solution where the actors effectively govern themselves.⁹¹ What is really noteworthy about the *Sony* decision is that not only did it protect innovation in the consumer electronics industry but it also helped spur the video rental market and the resurgence of the film industry - which ironically benefited the content owners and media providers who were the plaintiffs in *Sony*.⁹² Murray believes that, with respect to technological regulation, "what is needed is an approach that takes account of the unique nature of the network environment, a need for a more cohesive, measured, prudent and non-interventionist approach".⁹³

Similarly, the emerging area of law and technology theory brings to fore the social aspects of techno-legal issues. Cockfield's "synthetic theory of law and technology",⁹⁴ which attempts to bring together the dialectical extremes of technological determinism and instrumentalism, is founded on the idea that since "technology is increasingly interwoven with our social, political, economic, and cultural fabric... then laws that respond to (or fail to respond to) technological change will increasingly have an impact on important values and interests".⁹⁵ Like Murray, he sees legal rules and principles as having "an interactive, dynamic and complex relationship with technological developments".⁹⁶ Cockfield believes that "in times of technological change (when interests traditionally protected by law are threatened), legal analysis should become more contextual and forward-looking and less deferential to traditional doctrine".⁹⁷ This requires a more empirical approach to "legal scholarship that is less jurisprudential and more like the theories found within the natural or social sciences".⁹⁸

5. From Regulating Technologies to Governing Society

A more empirically-grounded, socio-techno-legal approach to the conflicts between technology and IP leads to a recognition that "the technology of regulation, like any technology, may have complex multidimensional impacts"⁹⁹ and that, ultimately, "regulation is the technology of governance".¹⁰⁰ In other words, what is needed is a more social, flexible, and interactive perspective on the challenges of new technologies. According to Wiener,

⁸⁸ A Murray, see note 70 above, at 41.

⁸⁹ A Murray, see note 70 above, at 244.

⁹⁰ A Murray, see note 70 above, at 52, 238 and 250.

⁹¹ A Murray, see note 70 above, at 237.

⁹² A Murray, see note 70 above, at 238-239.

⁹³ A Murray, see note 70 above, at 54.

⁹⁴ A Cockfield and J Pridmore, see note 76 above, at 475-476.

⁹⁵ A Cockfield, see note 40 above, at 386.

⁹⁶ A Cockfield, see note 40 above, at 400.

⁹⁷ A Cockfield and J Pridmore, see note 76 above, at 476.

⁹⁸ A Cockfield, see note 40 above, at 409; see J Wiener, see note 2 above, at 496.

⁹⁹ J Wiener, see note 2 above, at 494.

¹⁰⁰ J Wiener, see note 2 above, at 484.

The study of policy innovation starts from the proposition that there is no single universal best policy design, or best regulatory technology. Instead there are contextual criteria for success, which imply different regulatory designs for different problems, situations, societies, and institutional settings. We must test policy ideas, learn from empiricism, and adapt regulatory technology over time.¹⁰¹

The real question then is not should technology be regulated but how and by whom technology is governed. Thus, regulatory responses to new technologies in a post-Westphalian world include but go beyond the top-down controls imposed by courts and legislatures, and are better understood within the paradigm of dynamic governance and participation among plural state and non-state actors who equally act as both regulators and regulatees.¹⁰² Notwithstanding the seeming truism of the legal deference towards technology, there is no simple solution to the challenges of new technologies. This is so because the interface between technology and IP is best understood as an issue of governance of the global information society itself rather than the regulatability of technology *per se*.

¹⁰¹ J Wiener, see note 2 above, at 495.

¹⁰² A Murray, see note 70 above, at 250; see L Moses, see note 69, at 618; see J Morison, "Modernising Government and the E-Government Revolution: Technologies of Government and Technologies of Democracy" in N Bamforth and P Leyland (eds), *Public Law in a Multi-Layered Constitution* (Oxford: Hart Publishing, 2003).