MONDIALISATION ET PROPRIÉTÉ INTELLECTUELLE

Database Protection in a Global Economy

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1 INTRODUCTION

The last quarter of the twentieth century witnessed an explosive growth of intellectual property legislation in the advanced industrialized countries and an unprecedented drive to harmonize intellectual property rights at the international level, which initially culminated in the 1994 Agreement on Trade Related Aspects of Intellectual Property Rights ("TRIPS Agreement")[1]. Further efforts to consolidate and intensify the level of harmonization reached under that Agreement have continued with varying degrees of success. In 1996, two treaties regulating the transmission of copyrighted works and related productions in cyberspace were successfully adopted under the auspices of the World Intellectual Property Organization (WIPO)[2]. A major effort under WIPO auspices to further harmonize the international minimum standards of patent protection has also been launched[3], but it is too soon to predict the chances for a successful outcome. In contrast, efforts to harmonize the international protection of databases have so far proved unsuccessful.

In 1996, a database treaty that the European Commission had put forward, in connection with the WIPO negotiations on transmissions in cyberspace, ultimately failed to win the support of other regional groups[4]. Since then, the inability of the United States Congress to enact any form of database legislation has stymied further multilateral undertakings on this topic. This impasse may soon be broken, however, owing to the change of Administrations and to the appointment of new committee chairmen in the United States House of Representatives.

This article will discuss the prospects for an international regulatory framework for non copyrightable databases in the light of recent developments in the United States. Part 2 will locate the database problem within the larger context of international intellectual property protection, and it will demonstrate why the European Commission's 1996 Directive on the legal protection of databases[5] represented a radical departure from basic tenets of the classical intellectual property system handed down from the nineteenth century. Part 3 will compare the existing E.U. model of database protection with the two proposed models currently under consideration in the United States, from which any compromise formula is likely to

1. Marrakesh Agreement Establishing the World Trade Organization, Annex 1C, Agreement on Trade-Related Aspects of Intellectual Property Rights ("TRIPS Agreement"), 15 April 1994, 33 I.L.M. 81 (1994).
2. *See* World Intellectual Property Organization Copyright Treaty, adopted at Geneva, Switzerland, December 20, 1996, 36 I.L.M. 65 (1997); World Intellectual Property Organization Performance and Phonograms Treaty, adopted at Geneva, Switzerland, December 20, 1996, 36 I.L.M. 76 (1997).
3. World Intellectual Property Organization, Standing Committee on the Law of Patents, Draft Patent Law Treaty (SPLT), WIPO Doc. SCP/7/3, March 6, 2002.
4. World Intellectual Property Organization, Draft Treaty on Databases, WIPO Doc. CRNR/DC/6, Aug. 30, 1996.
5. Directive 96/9/EC of the European Parliament and of the Council of 11 March 1996 on the legal protection of databases, 1996 O.J. (L77) 20 ("E.C. Directive on Databases").

be drawn. It ends with some reflections on the deeper legal and economic implications of these proposals.

Part 4 will then explore the implications for the international intellectual property system likely to arise if the U.S. adopts a model of database protection that differs significantly from that of the E.U. It proposes an umbrella treaty to bridge the gap between high and low protectionist models. While a low protectionist outcome in the United States is by no means certain at the time of writing, a careful consideration of ways and means to reduce friction between countries that opt to provide different levels of protection in the global marketplace seems merited at the present juncture.

2 OF MARKET FAILURE AND THE DUAL ROLE OF INFORMATION

Traditional collections of information that are distributed in hard copies, such as directories, handbooks, and other useful compilations of facts or data, have long enjoyed a kind of twilight existence in domestic and international copyright laws[6]. These laws will protect collections of information that manifest a minimum quantum of "original and creative authorship", as typically revealed in the compiler's criteria for selecting, arranging, or coordinating the data assembled in any given compilation[7]. The Agreement on Trade Related Aspects of Intellectual Property Rights ("TRIPS Agreement") recently confirmed this disposition by requiring all World Trade Organization member states to protect "[c]ompilations of data or other material, whether in machine readable or other forms, which by reason of the selection or arrangement of their contents constitute intellectual creations"[8].

2.1 Limits of the Copyright Approach

Once admitted across the threshold of copyright law, however, these "factual works" are likely to receive only a "thin" scope of protection at the infringement stage. Because facts themselves are not copyrightable subject matter, and only the creative selection or arrangement is protectible, a second comer can, in principle, borrow the

6. *See* Jane C. Ginsburg, *Creation and Commercial Value: Copyright Protection of Works of Information*, 90 COLUM. L. REV. 1865 (1990); Jane C. Ginsburg, *No "Sweat"? Copyright and Other Protection of Works of Information After* Feist v. Rural Telephone, 92 COLUM. L. REV. 338 (1992); Jane C. Ginsburg, *Copyright, Common Law, and Sui Generis Protection of Databases in the United States and Abroad*, 66 U. CIN. L. REV. 151 (1997); Paula Baron, *Back to the Future: Learning from the Past in the Database Debate*, 62 OHIO STATE L. J. 874 (2001).
7. *See Feist Publications, Inc. v. Rural Telephone Service Co., Inc.*, 449 U.S. 340 (1991); E.C. Directive on Databases, *supra* note 5, art. 3.
8. TRIPS Agreement, *supra* note 1, art. 10.2.

first comer's disparate data while varying the organizational format[9]. To this end, the TRIPS Agreement declared that "[s]uch protection… shall not extend to the data or material itself"[10], and it thus elevates the thin copyright doctrine of United States law to a positive norm of world trade regulation.

This solution attempts roughly to reconcile the needs of those who invest in publishing compilations of information with the needs of second comers to access and use that same information and to recombine it in follow-on information goods. The copyright approach thus strikes a balance between incentives to invest and free competition that tends to err on the side of second comers. In effect, by severely limiting the first comer's derivative work rights, copyright law operates as a roving unfair competition law that protects investors merely against wholesale duplication of their information goods. In the United States, these limitations are thought to have Constitutional underpinnings, in keeping with First Amendment rights to freedom of speech and with the role of a robust public domain in sustaining democratic discourse[11].

This make-weight solution, however, always exposed commercial compilers of information to a risk of market failure whenever the end product consisted essentially of unprotectible data that a second comer could duplicate and rearrange at little cost in time or money. In such cases, the first comer prospects the market at his own risk, but finding himself exposed to instant copying, enjoys no period of natural lead time in which to appropriate the fruits of his investment or to recoup prior losses on unsuccessful essays. The second comer who free-rides on the information previously compiled may price the information good below the first comer's marginal costs and drive him out of the market[12].

When "facts are piled on facts"[13], in other words, there is a classic public good problem with real risks of market failure[14]. That condition characteristically ushers

9. *See, e.g., Feist*, 499 U.S. at 349-351; *Key Publications, Inc. v. Chinatown Today Publishing Enterprises, Inc.*, 945 F.2d 509, 514 (2d Cir. 1991); *Bellsouth Advertising & Publishing Corp. v. Donnelley Information Publishing, Inc.*, 999 F.2d 1436, 1446 (11th Cir. 1993) (*en banc*); *Warren Publishing Inc. v. Microdos Data Corp.* , 52 F.3d 950, 956 (11th Cir. 1995).
10. TRIPS Agreement, *supra* note 1, art. 10.2.
11. *See generally* Yochai Benkler, *Constitutional Bounds of Database Protection: The Role of Judicial Review in the Creation and Definition of Private Rights in Information*, 15 Berkeley Tech. L.J. 535 (2000); Yochai Benkler, *Free as the Air to Common Use: First Amendment Constraints on Enclosure of the Public Domain*, 74 N.Y.U. L. Rev.354 (1999); James Boyle, *Foucault in Cyberspace: Surveillance, Sovereignty, and Hardwired Censors*, 66 U. Cin. L. Rev. 177 (1997); Neil Netanel, *Locating Copyright Within the First Amendment Skein*, 54 Stan. L. Rev. 1 (2001).
12. Robert C. Denicola, *Copyright in Collections of Facts: A Theory for the Protection of Nonfiction Literary Works*, 81 Colum. L. Rev. 528 (1981); Wendy J. Gordon, *On Owning Information: Intellectual Property and the Restitutionary Impulse*, 78 Va. L. Rev. 149 (1992).
13. Denicola, *supra* note 12.
14. *See* Laura D'Andrea Tyson & Edward F. Sherry, "Statutory Protection for Databases: Economic and Public Policy Issues", research paper prepared under contract to Reed-Elsevier, Inc. and the Thomson Corp. , and presented as testimony on behalf of the Information Industry Association at the Oct. 23, 1997, Hearing on H.R. 2652, the "Collections of Information Antipiracy Act", held by the

in a tension between states of chronic overprotection, in which courts reinforce the compilers' incentives to invest, and states of chronic underprotection in which users and second comers tend to prevail. Between these extremes, there lie unanswered questions about the economics of information goods in general and of the database industry in particular. This uncertainty then hampers the quest for legal solutions that could avoid suboptimal investment without impeding follow-on innovation and without impoverishing the public domain[15].

2.2 The Sui Generis Alternative

How to protect collections of information that failed to meet the technical eligibility requirements of copyright law posed a hard problem that has existed for a half century or longer, and at least three different approaches emerged over time. One solution was to alter a domestic copyright regime so that it could accommodate and absorb "low authorship" literary productions, with perhaps some adjustments to the bundle of rights at the margins[16]. A second approach, adopted in the Nordic Countries, was to provide a short-term *sui generis* regime, built on a distinctly copyright-like model, that would protect catalogues, directories, and tables of data against wholesale duplication, without conferring on proprietors any exclusive adaptation right like that afforded to authors of true literary and artistic works[17]. A third approach, experimented with at different times and to varying degrees in different countries, including the United States, was to protect those who invested in compilations of information against wholesale duplication under different theories rooted in the "misappropriation" branch of unfair competition law[18].

What changed in the 1990's was the convergence of digital and

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Subcommittee on Courts and Intellectual Property of the Committee on the Judiciary of the U.S. House of Representatives; G.M. Hunsucker, *The European Database Directive: Regional Stepping Stone to an International Model?*, 7 Fordham Intell. Prop. Media & Ent. L. J. 697 (1997). *But see* David Fewer, *Constitutionalizing Copyright: Freedom of Expression and the Limits of Copyright in Canada*, 55 U.Toronto Fac. L. Rev. 175, 177 (1997) (denying existence of market failure in Canada); Stephen M. Maurer & Suzanne Scotchmer, *Database Protection: Is It Broken and Should We Fix It?*, 284 Science 1129 (1999) (no market failures in sight).

15. *See* J. H. Reichman & Pamela Samuelson, *Intellectual Property Rights in Data?*, 50 Vand. L. Rev. 51 (1997).
16. *See supra* note 6; Denicola, *supra* note 12; *see, most recently*, Justin Hughes, *Created Facts – Or the Occasional Protection of Ideas, Names and Facts in Copyright Law* (forthcoming 2002). The United Kingdom absorbed factual works into copyright law. *See, e.g.*, Baron, *supra* note 6.
17. *See, e.g.*, Gunnar Karnell, *The Nordic Catalogue Rule, in* Protecting Works of Fact 67 (E.J. Dommering and P.B. Hugenholtz eds., 1991).
18. *International News Service, Inc. v. Associated Press*,248 U.S. 215 (1918); *National Basketball Ass'n v. Motorola Inc.*, 105 F.3d. 841 (2nd Cir. 1997). *See, e.g.*, Jason R. Boyarski, *The Heist of* Feist*: Protection for Collections of Information and the Possible Federalization of "Hot News"*, 21 Cardozo L. Rev. 871 (1999); Brian F. Fitzgerald, *Protecting Informational Products (Including Databases) Through Unjust Enrichment Law: An Australian Perspective*, 1998 E.I.P.R. 244.

telecommunications networks, which potentiated the role of electronic databases in the information economy generally, and which made scientific databases in particular into an agent of technological innovation whose economic potential may one day outstrip that accruing from the patent system[19]. The emergence of digitally networked environments "has generated a host of new value-added services and products, and appreciably increased the importance of this segment of the database market"[20]. In a previous article, Professor Samuelson and I emphasized two reasons why digital technology would cause the market for value-added data-based products to flourish in the near future. First, "digital technologies facilitate the disaggregation of value-added functions" and permit new forms of data aggregation and presentation that were unavailable in print media. Second, "digital technologies foster new functions, such as reformatting, filtering, and hot-linking, which have no counterparts in print media"[21]. These predictions have held up over time, and there is no doubt that the database industry as a whole, and its value-added components, have in fact flourished despite constant allegations of market failure[22].

Notwithstanding the robust appearance of the present-day database industry under free market conditions, it was logical to ask whether suboptimal investment in complex electronic databases would not inevitably hinder that industry's long-term growth prospects if free-riding second comers could rapidly appropriate the contents of every successful new product without contributing to the costs of development and maintenance over time. If, in other words, there existed a gap in the law, which neither copyright nor residual unfair competition regimes adequately filled, then suitable regulatory action to enhance investment might produce positive social benefits[23]. At the same time, this utilitarian rationale raised new and delicate questions about the prospects for high and unintended social costs likely to ensue if intellectual property rights were injudiciously bestowed upon the building blocks of knowledge in general or on the raw material of the information economy in particular[24].

These uncertainties, in turn, raised a number of ancillary questions that required serious theoretical and empirical investigation. First among these was the extent to which any hypothetical impediments to investment were not being overcome by the

19. *See, e.g.*, J. H. Reichman & Paul Uhlir, *Database Protection at the Crossroads: Recent Developments and Their Impact on Science and Technology*, 14 Berkeley L.J. 793 (1999) [hereinafter Reichman & Uhlir (1999)]; *cf.* J.H. Reichman, *Electronic Information Tools: The Outer Edge of World Intellectual Property Law*, 24 Int'l Rev. Indus. Prop. & Copyright L. 446 (1993) [hereinafter Reichman, *Electronic Information Tools*].
20. Fewer, *supra* note 14, at 177; *see also* Hunsucker, *supra* note 14.
21. Reichman & Samuelson, *supra* note 15, at 125.
22. *See* Fewer, *supra* note 14 (case of Canada); Stephen M. Maurer, "Across Two Worlds: Database Protection in the U.S. and Europe", paper prepared for Industry Canada's Conference on Intellectual Property and Innovation in the Knowledge-Based Economy, May 23-24, 2001. *See generally* National Research Council, A Question of Balance: Private Rights and the Public Interest in Scientific and Technical Databases (1999) [hereinafter NRC, Question of Balance].
23. *See, e.g.*, Hunsucker, *supra* note 14; Tyson & Sherry, *supra* note 14.
24. *See* National Research Council, Bits of Power: Issues in Global Access to Scientific Data (1997) [hereinafter NRC, Bits of Power]; Reichman & Samuelson, *supra* note 15.

database entrepreneur's eagerness and willingness to invest anyway, in order to capture real world economic opportunities[25], and by the availability of self-help technical measures which, in combination with residual legal measures, sufficed to neutralize the risk of market failure. For example, electronic fencing through encryption devices, coupled with tagging or watermarking of the data, make it possible for online database providers to impose standardized contractual restrictions on all would-be users[26]. This restored power of the "two-party deal" in the networked environment[27] is so great, indeed, that critics fear it requires regulation lest online database providers abusively alter the pre-existing balance between public and private interests that the copyright law had previously sought to establish[28]. At the very least, these critics argue that, given the power of self-help remedies in the digital environment, contract and unfair competition law would suffice to close any regulatory gaps that were likely to ensue in the short or medium term, without further encumbering access to the public domain[29].

If the lack of any trustworthy empirical assessments of market failure under existing conditions thus made it difficult to ascertain the true need for regulatory action, the enquiry was further complicated by persistent anecdotal allegations that the database industry was dominated by sole-source providers who control niche markets and who seek to impede access by value-adding competitors[30]. The *Feist* decision in the United States, and many recent decisions under the E.U.'s database legislation[31], which is discussed below, fit this scenario. Given the opportunities for value-adding uses that digital technology makes available, any appropriate regulatory scheme should, in principle, seek to stimulate pro-competitive conditions that lower barriers to entry and encourage follow-on applications. It should not reinforce monopolistic tendencies that seem to plague key segments of the database industry at the present time.

Another question of capital importance is the role that databases currently play in both basic and applied sciences. Pre-existing legal regimes have treated scientific data as a common resource available from the public domain, and the ethos of science has been premised on a commitment to the free and open exchange of data to support

25. *See* Maurer, *supra* note 22; Maurer & Scotchmer, *supra* note 14.
26. *See* NRC, Question of Balance, *supra* note 22.
27. J. H. Reichman & Jonathan A. Franklin, *Privately Legislated Intellectual Property Rights: Reconciling Freedom of Contract with Public Good Uses of Information*, 147 U. Pa. L. Rev. 875 (1999).
28. *See, e.g.*, Mark A. Lemley, *The Law and Policy of Intellectual Property Licensing*, 87 Calif. L. Rev. 111 (1999); Reichman & Franklin, *supra* note 27.
29. *See, e.g.*, Cynthia M. Bott, *Protection of Information Products: Balancing Commercial Reality and the Public Domain*, 67 U. Cin. L. Rev. 237 (1998); Reichman & Samuelson, *supra* note 15.
30. *See* NRC, Bits of Power, *supra* note 24; NRC, Question of Balance, *supra* note 22.
31. *See* P. Bernt Hugenholtz, "The New Database Right: Early Case Law from Europe", paper presented at the Ninth Annual Conference on International IP Law and Policy, Fordham University School of Law, New York, April 19-20, 2001, available at <http://www.ivir.nl/medewerkers/hugenholtz.htm>.

scientific hypotheses and published findings[32]. The traditional and customary practice is accordingly for scientists to recombine data from existing databases into new databases to be used as electronic information tools to solve hard new problems. Any proposed regulatory solution must take these practices into account and avoid disrupting the worldwide scientific networks that depend on the sharing of essential data[33].

From a related but still broader perspective, vast quantities of technical information have always been freely available from the public domain, as a basic input of the knowledge economy, where the technology-exporting countries' comparative advantages are most deeply rooted. In other words, information is both an input and an output of the information economy[34]. This economy has grown to its present magnitude under conditions in which entrepreneurs can only obtain exclusive rights in downstream aggregates of information that rise to the level of patentable inventions or copyrightable works of authorship.

Upstream flows of information have, instead, usually been subject to liability rules[35], such as trade secret laws and unfair competition laws sounding in the misappropriation rationale, rather than exclusive property rights[36]. These liability rules tend to repress market-destructive conduct without removing technical information from the public domain. Any regulatory action must thus logically take into account the unintended consequences that might flow from suddenly impeding innovators and inventors from access to upstream information that has, until now, been freely available as inputs into technological development.

These considerations about goals, in turn, should logically focus attention on the choice of legal instruments to remedy any market failure that survived rigorous empirical investigation. In recent years, for example, efforts to protect investors in small-scale applications of know-how to industry from free-riding duplicators have led either to broadening distortions of the patent and copyright paradigms or to a proliferation of hybrid regimes of exclusive property rights, loosely based on obsolete design protection and utility model regimes. These tendencies have caused the patent and copyright systems to evolve in dangerously overprotective directions while encumbering free competition with an array of miniature property rights that

32. *See* NRC, Question of Balance, *supra* note 22.
33. *See* Reichman & Uhlir (1999), *supra* note 19; *see also* J. H. Reichman & Paul Uhlir, *Promoting Public Good Uses of Scientific Data: A Contractually Reconstructed Commons for Science and Innovation*, paper presented at the Conference on the Public Domain, Duke University, November 9-11, 2001 (publication forthcoming 2002) [hereinafter Reichman & Uhlir (2002)].
34. *See* Reichman & Franklin, *supra* note 27; Benkler (1999), *supra* note 11.
35. *See* Guido Calabresi & A. Douglas Melamed, *Property Rules, Liability Rules and Alienability: One View of the Cathedral*, 85 Harv. L. Rev. 1089 (1972).
36. J. H. Reichman, *Legal Hybrids Between the Patent and Copyright Paradigms*, 94 Colum. L. Rev. 2432 (1994) [hereinafter Reichman, *Legal Hybrids*]; J.H. Reichman, *Charting the Collapse of the Patent-Copyright Dichotomy: Premises for a Restructured International Intellectual Property System*, 13 Cardozo Arts & Ent. L.J. 475 (1995) [hereinafter Reichman, *Charting the Collapse*].

are cumulatively producing anti-competitive and anti-commons effects. My recent studies demonstrate the need for a new kind of intellectual property regime, based on liability rules rather than exclusive property rights, that could avoid market failure without creating barriers to entry and without impoverishing the public domain[37]. Such a regime, which I call a compensatory liability regime, solves the one key problem that all the hybrid regimes of exclusive property rights have so far failed to solve, namely that of deterring free riders without impeding follow-on innovation[38].

Any serious quest for an appropriate *sui generis* solution to the question of database protection would accordingly have engendered a serious investigation of the comparative economic advantages and disadvantages of regimes based on exclusive property rights as distinct from regimes sounding in liability rules. By the same token, this investigation would also have to factor in larger constitutional questions about the varying impacts of different legal regimes on freedom of speech and on the conditions of democratic discourse. For example, the Constitutional foundations of United States copyright law have always rested on a clear and sharp distinction between facts and ideas that were freely available to all and the author's expression of facts and ideas, which could not be copied. Allowing exclusive property rights to cover aggregates of data and information which had been previously unprotectible must sooner or later pose fundamental Constitutional questions for countries that take freedom of speech seriously, questions that a creative use of liability rules might altogether avoid[39].

All of these questions, taken together, suggested the need for long and careful study and an extremely cautious approach to resolving a database protection "problem" whose very existence had yet to be clearly demonstrated. Instead, the European Commission, proceeding without answers to any of these questions, cut the enquiry short by bestowing the strongest intellectual property right ever conceived on publishers who contributed nothing more to the public good than "sweat of the brow" investments in noncopyrightable compilations of facts and information.

2.3 A Leap in the Dark: The E.C. Directive on Databases

Against this background, the European Commission's methodology in pursuing a harmonizing regulation on databases is frankly puzzling to a foreign observer. One looks in vain for empirical or economic studies to determine the size and nature of

37. *See supra* note 36; *see also* William Kingston, *The "Thesis" Chapters*, *in* Direct Protection of Information, 1-124 (William Kingston ed., 1987); William Kingston, "Unlocking the Potential of Intellectual Property", paper presented to the Swedish International Symposium on Economics, Law and Intellectual Property, Gotheberg, June 26-30, 2000 at 3-4.
38. *See especially* J. H. Reichman, *Of Green Tulips and Legal Kudzu: Repackaging Rights in Subpatentable Innovation*, 53 Vand. L. Rev. 1743 (2000).
39. *See supra* note 11; *see also* Paul J. Heald, *The Extraction/Duplication Dichotomy: Constitutional Line-Drawing in the Database Debate*, 62 Ohio St. L. J. 933 (2001); Marci A. Hamilton, *A Response to Professor Benkler*, 15 Berkeley Tech. L. J. 605 (2000).

the problem to be solved, and one finds little or no academic literature evaluating the Commission's moves, let alone contesting or disputing them. On the contrary, there is a strange and disquieting silence in which what we know derives essentially from the self-serving legislative memorials that the Commission and its henchmen promulgate at various stages of the legislative process[40].

These memorials make little mention of the economic and political forces lobbying for protection behind the scenes or the countervailing interests that were likely to suffer according to the different solutions under consideration. We know only that the calls for protection to which the Commission was listening had grown ever stronger over time[41]; that a primary goal of the lobbyists operating behind the scenes was precisely to control follow-on applications of noncopyrightable data bases for the longest possible time; and that efforts by many of those who worked on the Directive – especially the German copyright officials – to include a compulsory licensing scheme as a *quid pro quo* for a strong property right were thwarted at the last moment by back door maneuvers that have never satisfactorily been explained[42].

The *sui generis* regime that the Commission ultimately adopted is like nothing we have ever seen before. It protects any collection of data, information or other materials that are arranged in a systematic or methodological way, provided that they are individually accessible by electronic or other means. This does not, however, imply that some organized form of storage is needed[43]. The criterion of eligibility is a "substantial investment", as measured in either qualitative or quantitative terms, and the courts are left to develop this concept. That the drafters believed a relatively minimal level of investment would suffice appears from an explicit recognition that the qualifying investment may consist simply of verifying or maintaining the database[44].

In return for this investment, the compiler obtains exclusive rights to extract or to utilize all or a substantial part of the contents of the protected database. The exclusive extraction right pertains to any transfer in any form of all or a substantial part of the contents of a protected database; the exclusive reutilization right covers only the making available to the public of all or a substantial part of the same

40. For details, *see* Reichman & Samuelson, *supra* note 15; *see generally* Jens L. Gaster [Principal Administrator, DG XV-E-4, European Commission, Brussels], *The New E.U. Directive Concerning the Legal Protection of Databases*, 20 Fordham Int'l L. J. 1129 (1997).

41. Maurer, *supra* note 22.

42. *See, e.g.*, Reichman & Samuelson, *supra* note 15, at 82-83 (citing authorities); communication from Prof. Justin Hughes (former official at USPTO responsible for database negotiations). The last minute deletion of a compulsory license for sole-source providers radically changed the Bill that the European Parliament had approved, and it left Parliamentary concerns about the lack of limitations and exceptions with no credible answer. Yet, the Bill was adopted without being returned to the European Parliament for reconsideration and approval in its final, much altered form. One can only wonder if the lack of procedural purity should not constitute a fatal constitutional defect.

43. *See* E.C. Directive on Databases, *supra* note 5, art. 1(2); Hugenholtz, *supra* note 31.

44. *See* E.C. Directive on Databases, *supra* note 5, art. 7(1).

database[45]. In every case, the first comer obtains a powerful adaptation (or derivative work) right along the lines that copyright law bestows on "original works of authorship"[46], even though such a right is alien to the protection of investment under existing unfair competition laws.

The Directive provides no major public interest exceptions comparable to those recognized under domestic and international copyright laws. An optional but ambiguous exception concerning illustrations for teaching or scientific research is said to be open to flexible interpretation[47], and some member countries have implemented it in different ways. However, other countries have simply ignored this exception altogether, which contradicts the Commission's supposed concerns about uniform law[48].

The Directive's *sui generis* regime does exempt from liability anyone who extracts or uses an insubstantial part of a protected database. However, such a user bears the risk of accurately drawing the line between a substantial and an insubstantial part, and any repeated or systematic use of even an insubstantial part will forfeit this exemption[49].

Qualifying databases are nominally protected for a fifteen year period. In reality, each new investment in a protected database, such as the provision of updates, will re-qualify that entire database as a whole for a new term of protection. In this and other respects, the *sui generis* adaptation right is far more powerful than that of copyright law, which attaches only to the new matter added to an underlying, pre-existing work[50]. As noted at the outset, the E.U. Database Directive thus breaks with the entire history of intellectual property law by allowing a property rule – as distinct from a liability rule – to last in perpetuity[51].

Finally, the Directive carries no national treatment requirement into its *sui*

45. *Id.*, art. 7(4); *see* Hugenholtz, *supra* note 31; Maurer, *supra* note 22.
46. *See, e.g.*, 17 U.S.C. §§101 ("derivative works"), 103, 106(2) (2002) [U.S.].
47. E.C. Directive on Databases, *supra* note 5, art. 9(b).
48. *See* NRC, QUESTION OF BALANCE, *supra* note 22, at 70-71; Reichman & Uhlir (1999), *supra* note 19, at 803-04. One should note that one of the principle lobbyists supporting strong database protection in both the E.U. and the U.S. is the world's leading supplier of commercialized scientific publications. One should also note that European governments that generate data may exercise either copyrights or *sui generis* rights in their own productions, unlike the situation in the United States, where the government cannot claim intellectual property rights in the data it generates and must make such data available to the public for no more than a cost- of- delivery fee. *See* NRC, QUESTION OF BALANCE, *supra* note 22, at 52-58.
49. E.C. Directive on Databases, *supra* note 5, arts. 7(2), 7(5).
50. E.C. Directive on Databases, *supra* note 5, art.10; Reichman & Samuelson, *supra* note 15, at 84-90.
51. Trademarks do last in perpetuity, but they do not protect innovation or investments as such, only the signs and symbols that enable consumers to distinguish one producer's goods from another's. William Landes & Richard A. Posner, *Trademark Law: An Economic Perspective*, 30 J. L. ECON. 265 (1987). They are thus not legal monopolies, and because they protect only against acts that yield a likelihood of confusion, there are historic questions about their status as "property" at all. These historical debates in turn reflect confusion about the fundamental distinction between exclusive property rights and liability rules, which have a different economic logic. *See* Calabresi &

generis component. Foreign database producers become eligible only if their countries of origin provide a similar form of protection or if, in keeping with a goal attributed to the Commission, they set up operations within the E.U.[52]. However, non-qualifying foreign producers may continue to invoke the residual domestic copyright and unfair competition laws, where available, and the cases so far arising under the various member' implementing statutes suggest that both regimes may often remain available to foreign parties[53].

Without going further into detail, it suffices to point out that the new regime embodied in the E.C.'s Directive on the legal protection of databases, adopted in 1996[54], broke radically with the historical limits of intellectual property protection in at least three ways:

– It overtly and expressly conferred an exclusive property right on the fruits of investment as such, without predicating the grant of protection on any pre-determined level of creative contribution to the public domain;

– It conferred this new exclusive property right on aggregates of information as such, which had heretofore been considered an unprotectible raw material or basic input available to creators operating under all other pre-existing intellectual property rights;

– It conferred the new exclusive property right in perpetuity, with no concomitant requirement that the public ultimately acquire ownership of the object of protection at the end of a specified period[55].

In this and other respects, the E.U. model abolished the concept of a public domain that had historically justified the grant of temporary exclusive rights in intangible creations from the start.

The Directive on Databases then took the further step of denying foreign producers protection unless their countries of origin had enacted comparable legislation that met a standard of material reciprocity, notwithstanding the drive for national treatment of intellectual property rights within the framework of the TRIPS Agreement[56]. Needless to say, this requirement of material reciprocity has only intensified the debate in the United States and in the rest of the world about the proper

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Melamed, *supra* note 35; Reichman, *Legal Hybrids*, *supra* note 36. Trademarks are "property" in the sense that proprietors obtain legally enforceable entitlements; but that entitlement is only to avoid deceiving or confusing consumers by the adoption of similar identifying symbols. While the property-like status of marks has been strengthened against "dilution" in recent years, it confers no rights in the underlying products of innovation or investment as such, which anyone remains free to copy and sell under a different mark.

52. *See* E.C. Directive on Databases, *supra* note 5, art. 11; Maurer, *supra* note 22.
53. *See* E.C. Directive on Databases, *supra* note 5, art. 13; Hugenholtz, *supra* note 31.
54. *See supra* note 5.
55. *See* Reichman & Samuelson, *supra* note 15, at 85-95.
56. *See supra* note 52 and accompanying text. However, material reciprocity may violate the residual national treatment clause of the Paris Convention, which is actionable under TRIPS. *Cf. United*

level of protection for noncopyrightable collections of data, which has impeded further consideration of a harmonizing international treaty in the intervening years.

3 THE DATABASE CONTROVERSY IN THE UNITED STATES

The situation in the United States differs markedly from that which preceded the adoption of the European Commission's Directive on the legal protection of databases. In general, the legislative process in the U.S. has become relatively transparent over time, and this transparency has generated a spirited and often high-level public debate. The resulting controversy has, in turn, led to the crystallization of two opposing coalitions that favor rather different approaches.

3.1 Transparency and Its Discontents

The coalition that supports a strong exclusive property right logically comprises most of the world's largest existing commercial database publishers. This "proponents' lobby" has acquired the politically potent support of realtors, who seek to exclude outsiders from access to their "multiple listings" databases, and of the New York Stock Exchange, which seeks to control the release of stock market information to nonmembers. The American Medical Association, which sells centralized diagnostic data resources to doctors, also supports a strong intellectual property right. The legislative "champion" of this coalition is the Chairman of the House Subcommittee on Courts and Intellectual Property of the House Committee on the Judiciary (the new and powerful Chairman of the latter Committee is said to sympathize with the protectionist views of his Subcommittee Chairman).

The opponents' ranks have swelled to include online service providers and certain telecommunication companies; online stockbrokers; major information technology companies, including dissident database publishers who license considerable amounts of data from others; the United States Chamber of Commerce; and an increasing number of diverse but powerful groups who fear rising costs for accessing data in the future. Also active in this coalition are the representatives of libraries, universities, and major scientific organizations. This "opponents lobby" prefers either no database regime or a *soi-disant* minimalist regime sounding in unfair competition law. It has found its legislative "champion" in the Chairman of the Commerce Committee of the House of Representatives, who has taken a public stand against enacting a strong exclusive property right to protect noncopyrightable

States – Section 211 Omnibus Appropriations Act of 1998, Report of the Appellate Body, WT/DS202/AB/R, January 2, 2002.

databases while expressing favorable views about an unfair competition approach[57].

In July of 1998, these groups participated in negotiations among stakeholders that were held under the auspices of the Chairman of the Senate Committee on the Judiciary[58]. By that time, the opponents had also persuaded the Clinton Administration not to support efforts to launch an international treaty regulating databases, under the auspices of WIPO, pending a Congressional decision concerning the proper course of action. Once these negotiations failed, the opponents continued to block adoption by the Senate of bills emanating from the House of Representatives' Judiciary Committee. In 1996, this Committee's proposal had taken the express form of a *sui generis* intellectual property regime. From 1997 onward – as will be discussed below – the House Judiciary Committee adopted the tactic of couching a database right in "misappropriation" terminology, even though the regime it proposed to enact was as strong or stronger than that adopted in the European Union[59].

In August 1998, the Clinton Administration, which had been internally divided on database protection since the end of the 1996 WIPO Diplomatic Conference, issued a set of principles to govern the adoption of any database protection legislation. Jointly drafted by the Patent and Trademark Office and the Office of Science and Technology Policy, these principles represented a moderate compromise among the various agencies and took the form of a letter to Senate Judiciary Chairman Orrin Hatch and the Ranking Member Patrick Leahy[60] (making it clear that the Administration was prepared to bypass the House Judiciary Committee, if necessary). Over time, the Clinton Administration issued comprehensive, detailed analyses of the database protection bills in the House[61], it exerted a considerable

57. *See, e.g.*, Jonathan Band & Makoto Kono, *The Database Protection Debate of the 106th Congress*, 62 Ohio St. L. J. 869 (2001).
58. For details, *see* Reichman & Uhlir (1999), *supra* note 19.
59. Communication from Prof. Justin Hughes.
60. Letter from Department of Commerce General Counsel Andrew Pincus to Senate Judiciary committee Chairman Orrin Hatch and Ranking Member Patrick Leahy, August 4, 1998, available at <http://www.acm.org/usacm/copyrightdoj-s2291.html>. The six principles had, as their antecedent, a set of centrist principles issued by the USPTO in July 1998, marking the USPTO's departure from its previous strong property right advocacy. *See* USPTO Report on Recommendations from the April 1998 Conference on Database Protection and Access Issues, available at <http://www.uspto.gov/dcom/olia/dbconf/dbase498.htm>. In formulating these principles, the Clinton Administration was influenced by Professor Justin Hughes, then in the international division of USPTO, and by Professor Brian Kahin, then in the Science Advisor's Office.
61. *See, e.g.*, The Administration Statement before the Subcommittee on Courts and Intellectual Property, Committee on the Judiciary, U.S. House of Representatives, concerning H.R. 354, the "Collections of Information Antipiracy Act", 18 March 1999 [hereinafter Pincus March Testimony], available at <http://www.ogc.doc.gov/ogc/legreg/testimon/106f/pincus0318.htm>; The Administration Statement before the Subcommittee on Commerce, U.S. House of Representatives, concerning H.R. 1858, the "Consumer and Investor Access to Information Act of 1999", 15 June 1999, available at <http://www.ogc.doc.gov/ogc/legreg/testimon/106f/pincus0615.htm>. Both statements were, again, the joint work of the USPTO and OSTP, with significant participation from the Antitrust Division of the Justice Department and the National Science Foundation.

restraining effect on the more extreme proposals, and in principle, its policies remain in effect, although the position of the Bush Administration had yet to be determined at the time of writing[62].

Numerous public hearings over the years have generated considerable publicity concerning the various legislative initiatives, and these forums have helped to raise the level of controversy over time. At one point, editorials against overly strong database protection appeared in the *New York Times* and the *Washington Post*. Besides a series of Congressional Hearings sponsored and largely controlled by proponents lobbying for strong protection, other public forums or inquiries were held under the auspices of the Copyright Office, the Patent Office, and the National Research Council (NRC). Major studies conducted by the NRC on this issue were published in 1997[63] and, after extensive public debate and testimony, again in 1999[64]. Most recently, in the Spring of 2001, the U.S. State Department and the National Research Council jointly sponsored a full-day's Roundtable Discussion of pending legislative initiatives, which drew an impressive crowd of stakeholders and interested parties[65].

The proposals for database legislation have spawned a vigorous and ever growing academic literature[66]. Several economic studies have also appeared, which predictably reach different conclusions depending on who commissioned them[67]. There is also a spate of hard-hitting articles by respected Constitutional scholars, who by different routes have raised serious doubts about the authority of Congress to enact a *sui generis* exclusive property right at all and about the consistency of any such regime with First Amendment prescriptions on freedom of speech[68]. This literature reinforces earlier reservations expressed by the Department of Justice[69], and it raises questions about the ability of any high-protectionist regime to survive Constitutional scrutiny, even if enacted.

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62. Communication from Prof. Justin Hughes. In the summer of 2001, the new Department of Commerce General Counsel, Ted Kassinger, and Justin Hughes of the USPTO, briefed the Office of Science and Technology on the Administration's past position, and informal reports indicate that most agencies remain supportive of the Administration's approach adopted in 1998-1999.
63. *See* NRC, Bits of Power, *supra* note 24.
64. *See* NRC, Question of Balance, *supra* note 22.
65. U.S. Department of State, Roundtable on Database Protection and International Science and Technology Cooperation, in association with the National Academies, the American Association for the Advancement of Science, and the Association of American Universities, Washington DC, July 11, 2001.
66. *See, e.g., supra* notes 6, 11-12, 22.
67. *See supra* note 14; *see most recently* Yale M. Braunstein, Economic Impacts of Database Protection in Developing Countries (February 2000) [commissioned by WIPO](finding that the strongest possible form of database protection is the best of all possible solutions in the best of all possible worlds).
68. *See supra* notes 11 & 39.
69. *See* Memorandum from William Michael Treanor, U.S. Dept. of Justice, Office of the Deputy Ass't Att'y Gen., to William R. Marshall, Associate White House Counsel, "Constitutional Concerns Raised by the Collections of Information Antipiracy H. R. 2652" (July 28, 1998).

Meanwhile, the database bills have become ever more controversial as more sectors of industry discover that they, too, will be affected by the outcome, and the ranks of stakeholders have continued to grow, both in terms of numbers and political clout. Every new legislative initiative is, accordingly, subject to intense public scrutiny, to loud and often acrimonious debate, and to considerable academic analysis. However, none of this activity ensures that the U.S. will adopt a better database law than that enacted in the E.U., nor does it guarantee that the U.S. model ultimately enacted will differ in more than marginal ways from its European predecessor. It does mean that very little will escape public scrutiny under the pressures for transparency and domestic debate that have become too strong to resist.

Against this background, the House Committee Chairmen mentioned above have recently pledged to reach some compromise solution during the present legislative session, and they have summoned the contending coalitions to participate in ongoing and relentless rounds of negotiations to this end. The outcome of these negotiations remains uncertain at the time of writing. It seems clear nonetheless that any viable database bill will be drawn from the two basic proposals that were still on the table at the end of the last legislative session, which ended in an impasse.

These proposals, as refined during that session, represent the baseline positions that each coalition carried into the current round of negotiations. One bill, H.R. 354 (as revised in January, 2000)[70], embodies the proponents' last set of formal proposals for a *sui generis* regime built on an exclusive property rights model (although some effort has been made to conceal that solution behind a title that evokes unfair competition law)[71]. The other bill, H.R. 1858, sets out the opponents' views of a so-called minimalist misappropriation regime as it stood on the eve of the current round of negotiations[72].

3.2 The State of Play: Pending Legislative Proposals

In evaluating these proposals, one should bear in mind that neither of them is particularly innovative, refined or well thought out, and both would institute relatively strong forms of protection. There is reason to believe nonetheless that a database bill premised on either of these models or on some hybrid combination thereof stands a better chance of being enacted by the current 107th Congress than at any time in the past six years.

70. *See* U.S. House of Representatives, House Comm. on the Judiciary, 106th Cong., 1st Session, H.R. 354, The Collections of Information Antipiracy Act, Jan. 19, 1999 [hereinafter H.R. 354]. This Bill was subject to proposed amendments on Jan. 11, 2000, which, however, were not formally submitted as an amended proposal. The summary in the text sometimes reflects changes that were introduced in publicly disclosed proposals for amendments.
71. *See supra* note 59 and accompanying text.
72. *See* U.S. House of Representatives, House Committee on Commerce, 106th Cong., 1st Session, H.R. 1858, Consumer and Investor Access to Information Act of 1999, May 19, 1999 [hereinafter H.R. 1858].

3.2.1 The Exclusive Rights Model

The proposals embodied in H.R. 354 attempt to achieve levels of protection comparable to those of the E.C. Directive by means that are more congenial to the legal traditions of the United States[73]. The changes introduced at the end of the last legislative session, in particular (often under pressure from agents of the past Administration seeking to engender a compromise), softened some of the most controversial provisions at the margins, while maintaining the overall integrity of a strongly protectionist regime.

The bill in this form continues to define "collections of information" very broadly as "information… collected and… organized for the purpose of bringing discrete items of information together in one place or through one source so that persons may access them"[74]. Here the overlap with copyright law is so palpable that one can hardly conceive of any assemblage of words, numbers, facts or information that would not also qualify as a potentially protectible collection of information.

Like the E.C. Directive, this bill casts eligibility in terms of an "investment of substantial monetary or other resources" in the gathering, organizing or maintaining of a "collection of information"[75]. It then confers two exclusive rights on the investor, viz., a right to make all or a substantial part of a protected collection "available to others" and a right "to extract all or a substantial part to make available to others". Here the term "others" is manifestly broader than "public" in ways that remain to be clarified[76].

H.R. 354 then superimposes an additional criterion of liability on both exclusive rights that is not present in the E.U. model. This is the requirement that, to trigger liability for infringement, any unauthorized act of "making available to others" or of "extraction" for that purpose must cause "material harm to the market" of the qualifying investor "for a product or service that incorporates that collection of information and is offered or intended to be offered in commerce." The crux of liability under the bill thus derives from a "material harm to markets" test that is meant to cloud the copyright-like nature of the bill and to shroud it in different terminology[77].

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73. *See generally* Amanda Perkins, *United States Still No Closer to Database Legislation*, 2000 E.I.P.R. 366.
74. H.R. 354, *supra* note 70, §1401(1).
75. *Id*., §1402(a).
76. However, the second right represents a concession to the past Administration in that it foregoes the general *right to control private use* that appeared in previous versions. This concession thus *reduces* the scope of protection to a point more in line with the E.U.'s reutilization right, and it does not impede personal use by one who lawfully acquires access to the database. *See id.*, §1402(a).
77. *See id.* As originally deposited, H.R.354 spoke of "material harm to the primary market or a related market" of the investor. *Id.* The analysis in the text is based on the more refined but unpublished proposals of January 11, 2000. In fact, a "harm to markets" test is lifted bodily from §107(4) of the Copyright Act of 1976, and it reflects the better view of what U.S. copyright law is all about. *See* J. H. Reichman, *Goldstein on Copyright Law: A Realist's Approach to a Technological Age*, 43 Stan. L. Rev. 943 (1991) (reviewing Paul Goldstein, Copyright: Principles, Law and Practice (1990)).

Here a number of concessions were made to the opponents' concerns in the last iteration of the bill (Jan. 11, 2000), some of them real, others nominal in effect. The addition of "material" to the market harm test[78], may, for example, address complaints that proponents viewed "one lost sale" as constituting actionable harm to the market. How much more trenchant a "material harm" test really is remains to be seen.

At the same time, the revised bill contains convoluted and tortuous definitions of "market" that the Administration hoped would reduce the scope of protection in the case of follow-on applications[79]. On closer inspection, however, these definitions provide a static picture of a moving target that amounts to a mostly illusory limitation on the investor's broad adaptation right[80]. In other words, notwithstanding these so-called concessions, the bill effectively assigns most follow-on applications to any initial investor whose dynamic operations expand the range of potentially protectible matter with every up date, ad infinitum.

The bill then introduces a "reasonable use" exception that would presumably benefit the nonprofit user communities, especially researchers and libraries[81], and that is meant to convey a sense of similarity with the "fair use exception" in copyright law[82]. Once again, this resemblance turns out to become largely illusory on closer analysis, because under the proposed bill, the very facts, data and information that copyright law excludes have become the objects of protection, and there are no other significant exceptions. Hence, virtually every customary or traditional use of facts or information compiled by others that copyright law would presumably have allowed

78. H.R. 354, *supra* note 70, §1402(a); *see supra* text accompanying note 76.
79. "Market" is thus supposed to assimilate "all markets" in which a protected investor "derives or reasonably expects to derive substantial revenue, directly or indirectly" as well as all markets in which that investor "has taken demonstrable steps discernable to the public, to offer in commerce within a short period of time a product or service" from which he expected to derive a substantial revenue. H.R. 354, *supra* note 70, §§1401(3)(A), (B), with additional proviso added Jan. 11, 2000.
80. In principle, only actual, likely, or planned markets are protected under this scheme, which creates a narrow opening for a value-adding competitor who arrives on the scene with an unlikely or unplanned application. Even here, however, the definitions ignore the prospects that the initial investor will continue to expand the range of projected investments over time and thus convert all the tests to moving targets that constantly expand his potential claims to protected market segments. In practice, moreover, database proprietors would be well-advised to "plan" for any market segments they can remotely foresee over time and to craft their business plans in broadly worded terms accordingly. Should by some miracle a second collector discover a surprise market niche to slip into all the same, the initial proprietor's most likely strategy would be to surround the second comer with applications of his own, in order to limit the second comer's field of expansion and to extract cross-licenses wherever possible.
81. H.R. 354, *supra* note 70, §1403(2).
82. In copyright law, there is a thicket of exclusions and exceptions that must be worked through before anyone can infringe. In particular, one cannot infringe for a taking of unprotectible facts or ideas, and even a taking of protectible expression may be excused by codified exceptions for, say, teaching or research. The "fair use" exception comes into play only as a last resort, to excuse marginal takings by an alleged infringer that advance the public interest at a small cost to the proprietor. *See* 17 U.S.C. §§107-122.

scientists, researchers, or other nonprofit entities to make in the past now become prima facie instances of infringement under H.R. 354. These users would in effect have either to license such uses or be prepared to seek judicial relief for "reasonableness" on a continuing basis. Because universities dislike litigation and are risk averse by nature, and this provision puts the burden of showing reasonableness on them, there is reason to expect a chilling effect on customary uses of data by these institutions[83].

The bill then recognizes an "independent creation" norm, which presumably exempts any database, however similar to an existing database, that was not the fruit of "copying"[84]. This provision codifies a fundamental norm of copyright law, and the European Commission made much of a similar norm in justifying its own regulatory scheme. In reality, this "independent creation" principle produces unintended and socially deleterious consequences when transposed to the database milieu precisely because the most complex and important databases become ever less susceptible of independent regeneration as their value grows over time.

Sometimes the database cannot be reconstituted because the underlying phenomena are one-time events, as often occurs in the sciences[85]. At other times, key components of a complex database will have gone lost or missing, and they can no longer be reconstituted with certainty at a later date. Any independently regenerated database suffering from these defects would necessarily contain gaps that made it inherently less reliable than its predecessors.

These problems point to a more general phenomenon that affects competition in complex databases generally. Even when, in principle, such databases could be reconstituted from scratch, the high costs of doing so – as compared with the add-on costs of existing producers – will tend to make the second comer's costs so high as to constitute a barrier to entry. Meanwhile, the first comer's comparative advantage from already owning a large collection that is too costly to reconstitute will only grow more formidable over time, an economic reality that progressively strengthens the barriers to entry and tends to reinforce (and, indeed, to explain) the predominance of sole-source data suppliers in the marketplace[86].

As more and more segments of industry come to appreciate the market power that major database producers could thus acquire under the proposed legislation, one after

83. *Cf.* Reichman & Uhlir (1999), *supra* note 19, at 812-20, 825-29. A further provision then completes the sense of circularity by expressly exempting any nonprofit educational, scientific, and research use that "does not materially harm the market" as previously defined. *See* H.R. 354, *supra* note 70, §1403(b). Since any use that does not materially harm the market remains unactionable to begin with, this "concession" adds nothing but window dressing. However, another vaguely worded exception seems to recognize at least a possibility that certain "fully transformative uses" might nonetheless escape liability, but this ambiguous proposal defies interpretation in its present form and remains to be clarified.
84. H.R. 354, *supra* note 70, §1403(c).
85. *See* Reichman & Uhlir (1999), *supra* note 19, at 807-08.
86. *See esp.* Benkler (1999), *supra* note 11.

another has petitioned the subcommittee for special relief. Thus, the bill, which has now grown to some thirty pages in length, singles out various special interests who benefit, to varying degrees, from special exemptions from liability. At the time of writing the list of those entitled to such immunities included news reporting organizations; churches that depend on genealogical information, notably the Mormons; online service providers; and certain online stockbrokers[87].

Government-generated data remain excluded, in principle, from protection, in keeping with current U.S. practice[88], which differs from E.U. practice in this important respect. However, there is considerable controversy concerning the degree of protection to be afforded government-generated data that subsequently become embodied in value-adding, privately funded databases[89]. All parties agree that a private, value-adding compiler should obtain whatever degree of protection is elsewhere provided, notwithstanding the incorporation of government-generated data. The issue concerns the rights and abilities of third parties to continue to access the original, government-generated data sets, notwithstanding the existence of a commodified embodiment. At the time of writing, the proponents were little inclined to accept measures seeking to preserve access to the original data sets, but pressures in this direction were building[90].

H.R. 354 imposes no restrictions whatsoever on licensing agreements, including agreements that might overrule the few exceptions otherwise allowed by the bill[91]. Despite constant remonstrations from opponents about the need to regulate licensing in a variety of circumstances, and especially with respect to sole-source providers, the bill itself has not budged in this direction.

On the contrary, new provisions added to the last iteration of H.R. 354 in 2000 would set up measures that prohibit tampering with encryption devices ("anti-circumvention measures") and with electronically embedded or "watermarked" rights management information, in a manner that parallels the provisions adopted for online transmissions of copyrighted works under the Digital Millennium Copyright Act of 1998[92]. Because these provisions effectively secure the database against unauthorized access (and tend to create an additional "exclusive right of access" without expressly so declaring)[93], they would only add to the database owner's market power to dictate contractual terms and conditions without regard to the public

87. *See* H.R. 354, *supra* note 70, §1403(e)(f)(i).
88. *See id.*, §1404.
89. *See, e.g.*, Peter N. Weiss & Peter Backlund, *International Information Policy in Conflict: Open and Unrestricted Access versus Government Commercialization*, *in* Borders in Cyberspace 300, 303 (Brian Kahin & Charles Neeson eds., 1997).
90. *See* NRC, Question of Balance, *supra* note 22, at 102-105.
91. H.R. 354, *supra* note 70, §1404(e).
92. *Cf.* Digital Millennium Copyright Act, Pub. L. No. 105-304, 103, 112 Stat. 2860, 2863 (1998) (codified at 17 U.S.C. 512, 1201), §§512, 1201, 1205.
93. *See, e.g.*, Jane C. Ginsburg, *Copyright and Control Over New Technologies of Dissemination*, 101 Colum. L. Rev. 1613 (2001).

interest. These powers are further magnified by the imposition of strong criminal sanctions in addition to strong civil remedies for infringement[94].

The one major concession that has so far been made to the opponents' constitutional arguments concerns the question of duration. As previously noted, the E.C. Directive allows for perpetual protection of the whole database so long as any substantial part of it is updated or maintained by virtue of a new and substantial investment, and the proponents' early proposals in the U.S. echoed this provision[95]. However, the U.S. Constitution clearly prescribes a limited term of duration for intellectual property rights[96], and the proponents have finally bowed to pressures from many directions by limiting the term of duration to fifteen years[97].

Any update to an existing database would then qualify for a new term of fifteen years, but this protection would apply, at least in principle, only to the new matter added in the update. In practice, however, the inability to clearly separate old from new matter in complex databases, coupled with ambiguous language concerning the scope of protection against harm to likely, expected, or planned market segments[98], may still leave some loophole for an indefinite term of duration.

3.2.2 The So-Called Misappropriation Model

The opponents' own bill, H.R. 1858, entitled "Consumer and Investor Access to Information Act of 1999", was put before the House Commerce Committee in 1999, as a sign of good faith[99]. Critics have claimed that the opponents' coalition seeks to block the adoption of any database protection law and prefers simply to maintain the status quo. In fact, this is true of some, but not all, members of that coalition. Universities, for example, although allied with the opponents' coalition for strategic reasons, prefer a minimalist approach because they want some protection against unauthorized commercial applications of their data without hindering access to data for honest research activities. Over time, moreover, pressures for some form of database protection have built up to the point where the minimalist alternative bill has become a serious basis of negotiation, even though it remains poorly crafted and contains numerous ambiguities.

H.R. 1858 begins with a definition of databases that is not appreciably narrower than that of H.R. 354, except for an express exclusion of traditional literary works that "tell a story, communicate a message", and the like[100]. In other words, there is at least

94. *See* H.R. 354, *supra* note 70, §§1406-1407.
95. *See supra* text accompanying notes 50-51; Reichman & Samuelson, *supra* note 15, at 103-09 (citing authorities).
96. U.S. Constitution, Art. I, Sec. 8, cl. 8.
97. *See* H.R. 354, *supra* note 70, §1409(i).
98. *See supra* note 80.
99. *See* H.R. 1858 (May 19, 1999), *supra* note 72. *See also* H.R. Rep. No. 106-350, Part-I (1999); Perkins, *supra* note 73.
100. *See* H.R. 1858, *supra* note 72, §101(1).

some attempt to draw a clearer line of demarcation between the proposed database regime and copyright law, in order to reduce overlap or cumulative protection as might occur under H.R. 354.

The operative protective language in H.R. 1858 appears short and direct, but it relies on a series of contingent definitions that muddy the true scope of protection. Thus, the bill would prohibit anyone from selling or distributing to the public a database that is 1) "a duplicate of another database… collected and organized by another person or entity" *and* 2) "is sold or distributed in commerce in competition with that other database"[101]. The bill then defines a prohibited duplicate as a database that is "substantially the same as such other database, as a result of the extraction of information from such other database"[102].

In other words, liability attaches only for a wholesale duplication of a pre-existing database that results in a substantially identical end product. However, this basic misappropriation approach becomes further subject to both expansionist and limiting thrusts. Expanding the potential for liability is a proviso added to the definition of a protectible database that treats "any discrete sections [of a protected database] containing a large number of discrete items of information" as a separably identifiable database entitled to protection in its own right[103]. The bill would thus codify a surprisingly broad prohibition of follow-on applications that make use of discrete segments of pre-existing databases[104], subject to the limitations set out below.

A second protectionist thrust results from the lack of any duration clause whatsoever. In other words, the prohibition against wholesale duplication – subject to limitations set out below – could conceivably last forever. This perpetual threat of liability would attach to wholesale duplication of even a discrete segment of a pre-existing database, if the other criteria for liability were also met. However, these powerfully protective provisions, put into H.R. 1858 at an early stage in order to weaken support for H.R. 354, are offset to some degree by other express limitations on liability and by a codified set of misuse standards to help regulate licensing.

To understand these further limitations, one should recall that liability even for wholesale duplication of all or a discrete segment of a protected database does not attach unless the unauthorized copy is sold or distributed in commerce and "in competition with" the protected database[105]. The term "in competition with", when used in connection with a sale or distribution to the public, is then defined to mean that the unauthorized duplication "displaces substantial sales or licenses likely to accrue from the original database" *and* that it "significantly threatens… [the first

101. *See id.*, §102.
102. *See id.*, §101(2).
103. *See id.*, §101(1)(B).
104. The Clinton Administration expressed reservations about this *de facto* derivative-work right, which is built into a regime that lasts forever. Communication from Prof. Justin Hughes.
105. *See* H. R. 1858, *supra* note 72, §102.

comer's] opportunity to recover a reasonable return on the investment" in the duplicated database[106]. Both prongs must be met before liability will attach.

It follows that even a wholesale duplication that was not commercially exploited or that did not substantially decrease expected revenues (as might occur from, say, nonprofit scientific research activities) could presumably escape liability in appropriate circumstances. Similarly, a follow-on commercial product that made use of data from a protected database might escape liability if it was sold in a distant market segment or required substantial independent investment.

H.R. 1858 then further reduces the potential scope of liability by imposing a set of well-defined exceptions and also by limiting enforcement to actions brought by the Federal Trade Commission (FTC). There are express exceptions for news reporting, law enforcement activities, intelligence agencies, online stockbrokers, and online service providers that are more or less comparable to those under H.R. 354[107]. There is also an express exception for nonprofit scientific, educational, or research activities[108], just in case any such uses were thought to escape other definitions that condition liability on unauthorized uses in competition with the first comer. Still other provisions clarify that the protection of government-generated data or of legal materials in value-adding embodiments remains contingent upon arrangements that facilitate continued public access to the original data sets or materials[109]. A blanket exclusion of protection for "any individual idea, fact, procedure, system, method of operation, concept, principle or discovery" wisely attempts to provide a line of demarcation with patent law and to ward off unintended protectionist consequences in this direction[110].

The provision that conditions liability for infringement on an official FTC action[111] was a tactical expedient devised to provide the House Commerce Committee with some basis for asserting concurrent jurisdiction over database legislation, along with that of the Subcommittee on Courts and Intellectual Property. Most observers believe that the absence of any private right of action in H.R. 1858 as it stands constitutes a fatal flaw that would have to be removed in any final compromise decision to adopt an unfair competition approach. A vocal minority of supporters considers FTC supervision a necessary safeguard, especially in view of the First Amendment tensions that any database protection law is certain to generate in the United States.

106. *Id.*, §101(5).
107. H. R. 1858, *supra* note 72, §§103(b), (c), 104(b), (e), 106(a).
108. *See id.*, §103(d).
109. *See id.*, §§101(b), 104(f). There are also express exclusions of telecommunications carriers' subscription lists (e.g., telephone directories) and of securities market data. *Id.*, §104(g). However, the bill proposes an amendment to the Securities Exchange Act of 1934 that would prohibit the misappropriation of "real-time" stock market information. *Id.*, §201.
110. *See id.*, §104(d).
111. *See id.*, §107.

A potentially more important set of safeguards emerges from the drafters' real concerns about potential misuses of even this so-called minimalist form of protection. These concerns are expressed in a provision that expressly denies liability in any case where the protected party "misuses the protection" that H.R. 1858 affords. A related provision then elaborates a detailed list of standards that courts could use as guidelines in particular cases in order to determine whether an instance of misuse had occurred[112]. These guidelines or standards would greatly clarify the line between acceptable and unacceptable licensing conditions, and if enacted, they could make a handsome contribution to the doctrine of misuse as applied to the licensing of other intellectual property rights as well[113].

In summary, the underlying purpose of H.R. 1858 was to prohibit wholesale duplication of a database as a form of unfair competition. It thus set out to create a minimalist liability rule that prohibits market-destructive conduct rather than an exclusive property right as such[114], and in this sense, it initially posed a strong contrast to H.R. 354. Over time, however, different iterations of the bill, designed to win supporters away from H.R. 354, have made H.R. 1858 surprisingly protectionist, especially in view of its de facto derivative work right. The realities of the bargaining process are such that concessions unwisely made to the high protectionist camp at an earlier stage, for whatever tactical reasons, are unlikely to be withdrawn now.

3.3 Social Costs of Striking the Wrong Balance

Finding the right balance of public and private interests in a legal regime to stimulate investment in databases would constitute a difficult task under the best of circumstances. From an historical perspective, the patent and copyright paradigms inherited from the nineteenth century were premised on the need to protect relatively large-scale contributions of single authors or inventors that promoted "science and the useful arts"[115]. Small-scale applications of know-how to industry were generally relegated to unfair competition laws, especially trade secret laws or laws protecting confidential information. In other words, investments in noncopyrightable aggregates of information were normally protected under liability rules that regulated the processes of reverse engineering and not under exclusive property rights[116]. Yet, formal legal or economic analysis of liability rules in this context has attracted relatively little attention in the literature[117].

112. H. R. 1858, *supra* note 72, §§106(b), 106(b)(1-6).
113. These provisions could particularly assist judicial regulation of shrink wrap and click on licenses affecting online distribution of software and other electronic information tools. *See generally* Reichman & Franklin, *supra* note 27.
114. For early proposals to this effect, *see* Reichman & Samuelson, *supra* note 15.
115. *See supra* note 96; Reichman, *Charting the Collapse*, *supra* note 36.
116. *See most recently* Reichman, *Green Tulips*, *supra* note 38 (criticizing deviant regimes of utility models and industrial design laws).
117. *See, e.g.*, Gordon *supra* note 12; for recent legal and economic analysis of reverse engineering, *see* Pamela Samuelson & Suzanne Scotchmer, *The Law and Economics of Reverse Engineering*, 111 Yale L. J. (2002).

3.3.1 Exclusive Property Rights versus Liability Rules

Most of the economic literature that has so far addressed the topic of database protection tends unconsciously to assume the premises that ultimately yield the authors' expected conclusions. Because most economists uncritically equate "property rights" with "exclusive rights", and because the risk of market failure inherent in public goods is often efficiently overcome with "property rights", these studies usually end where they began, by endorsing property rights, usually the stronger the better[118]. Such studies beg all the important questions that a deeper knowledge of intellectual property law might raise, namely, what level and mode of protection might produce the greatest amount of investment with the most acceptable degree of social costs[119].

The most fundamental question that these studies largely ignore is the extent to which any exclusive property right might *a priori* constitute the wrong kind of solution for a legal regime that aims to protect investment in compiling aggregates of data as such. One would, indeed, expect or prefer economic analysis to focus on the comparative advantages and disadvantages of using either exclusive property rights or liability rules[120] to address the underlying risks of market failure.

In this connection, a growing number of innovative proposals rooted in liability rules have been put on the table in recent years, in addition to the better known proposals for a more traditional unfair competition approach. For example, Wendy Gordon has proposed a tort of "malcompetitive copying" that would rest on specific economic criteria[121]. William Kingston has proposed a new type of liability regime that would transform intellectual property protection from a duration-based calculus of rights to an accounting-based calculus of rights premised on multiples of R&D costs[122]. I have elsewhere proposed a "compensatory liability" regime that would allow second comers freely to extract data from a protected database in order to compete with value-adding follow-on products, so long as adequate compensation was paid under an "automatic license" (not a compulsory license) for a specified period of time[123].

However, most economists engaged in this topic have so far ignored these and other proposals largely because their economic models and premises simply do not allow them to take liability rules into account. Others dogmatically castigate liability

118. *See, e.g.*, Tyson & Sherry, *supra* note 14; Braunstein, *supra* note 67. For trenchant criticism of this approach, see James Boyle, *Cruel, Mean or Lavish: Economic Analysis, Price Discrimination and Digital Intellectual Property*, 52 Vand. L. Rev. 2007 (2000).
119. *See, e.g.*, Rochelle C. Dreyfuss, *Information Products: A Challenge to Intellectual Property Theory*, 20 N.Y.U. J. Int'l L. & Pol. 897 (1988); Reichman, *Electronic Information Tools, supra* note 19.
120. *See, e.g.*, Calabresi & Melamed, *supra* note 35.
121. Gordon, *supra* note 12; *see also* Dennis J. Karjala, *Misappropriation as a Third Intellectual Property Paradigm*, 94 Colum. L. Rev. 2594 (1994).
122. *See supra* note 37.
123. *See* Reichman & Samuelson, *supra* note 15; Reichman, *Green Tulips, supra* note 38.

rules in the abstract and postulate their inherent inferiority to exclusive rights[124], without devoting any serious attention to the social costs that critics of strong database protection continue to fear.

As a result, formal economic analysis has so far taught us virtually nothing about how to craft a protective regime so as to avoid market failure without stifling competition and impoverishing the public domain. Small wonder that, amidst so much uncertainty, the most credible economic advice has been that of Scotchmer and Maurer, who advise against taking any premature action that might make the end result far worse than the predicament from which we started[125].

3.3.2 Legislating Without a Solid Empirical Foundation

There is still relatively little empirical evidence available with which to evaluate the behavior of legal regimes capable of protecting large aggregates of data under either exclusive property rights or liability regimes. In the United States, recent federal appellate decisions have expanded copyright law to protect a growing number of borderline compilations of facts and data that the Supreme Court's 1991 decision in *Feist* would logically exclude[126]. In so doing, these decisions deform the classical copyright paradigm by *extending protection to algorithms, facts and ideas* as such.

Copyright law also provides a very long term of protection[127]. As currently applied, it endows database proprietors with virtually unlimited powers to control follow-on applications of functional and factual matter of all kinds, and it further endows them with a *de facto* exclusive access right that governs online delivery of digital information products. Stretching copyright law to cover electronic databases thus merely conflates the idea-expression dichotomy, extends the scope of protection to facts as such, and subverts the border with patent law[128]. It hardly represents a sound and balanced alternative to the E.U.'s *sui generis* regime.

Disregarding copyright law, the ability of database producers to use self-help adhesion contracts and encryption devices to protect online delivery has greatly expanded[129]. However, such measures do not altogether close a gap in the law that

124. *See, e.g.*, Robert P. Merges, *Of Property Rules, Coase, and Intellectual Property*, 94 Colum. L. Rev. 2655 (1994); Robert P. Merges, *Contracting Into Liability Rules: Intellectual Property Rights and Collective Rights Organizations*, 84 Cal. L. Rev. 1293 (1996); Richard A. Epstein, "Steady the Course: Property Rights in Genetic Material", paper presented to the Intellectual Property Colloquium, Washington University (of St. Louis) Conference on Law and the Human Genome Project, April 12-13, 2002.
125. Maurer & Scotchmer, *supra* note 14.
126. *See, e.g., CCC Information Services, Inc. v. Maclean Hunter Market Reports, Inc.*, 44 F.3d 61 (2d Cir. 1994); *CDN, Inc. v. Kapes*, 197 F.3d 1256 (9th Cir. 1999); *see generally* Hughes, *supra* note 16.
127. *See generally* J. H. Reichman, *The Duration of Copyright and the Limits of Cultural Policy*, 14 Cardozo Arts & Ent. L. J. 625 (1996).
128. *See* Hughes, *supra* note 16.
129. *See* NRC, Question of Balance, *supra* notes 22, 64-68. The efficacy of these measures remains uncertain pending adoption or rejection of the Uniform Computerized Information Transactions Act

opens when third parties not in privity of contract with the producer obtain access to the contents of the database[130]. It will not do either to exaggerate or to underestimate the extent of this risk.

That a codified, federal unfair competition law, sounding in the misappropriation rationale, could fill this gap remains a valid theory. It would constitute a minimalist response to a potential gap in the law whose true dimensions remain unknown, and it could also provide the uniform model needed for proper administration of the national system of innovation and for negotiating an international arrangement[131]. However, any legislative initiative in this regard risks being captured by special interests and converted into a high-protectionist exercise with serious unintended consequences.

The empirical evidence drawn from judicial application of the E.C.'s Directive on Databases so far sheds little light on the deeper issues. Most of the European cases have invoked copyright law, contracts law, or unfair competition law (especially the doctrine of parasitical copying) to reinforce or supplement conclusions reached under the *sui generis* database protection laws as such. Moreover, most of the extant European decisions deal with borderline subject matters under the old economy, such as telephone directories, television broadcast listings, and real estate listings, but not cutting-edge subject matter of the new economy, such as biotech databases[132]. The E.U. case law to date confirms the existence of all the hard problems that the literature has so far identified – the prevalence of sole-source providers; unreasonable restrictions on licensing; barriers to entry; and impediments to follow-on applications of data[133] – without a scintilla of evidence that the Directive has satisfactorily resolved any of these problems.

(UCITA), proposed by the Uniform Law Commissioners, but adopted only in two states. This proposed uniform state law enables providers to impose harsh terms against the world, and it could disrupt the private-public balance embodied in the federal intellectual property laws unless courts apply limiting doctrines, such as pre-emption, public policy or a public-interest unconscionability doctrine. *See, e.g.*, Lemley, *supra* note 28; Reichman & Franklin, *supra* note 27. Even if UCITA (which sixteen state attorneys-general opposes) fails to gain wide legislative support, the ability of private contract law and self-help measures, especially encryption devices, to regulate online access to databases relieves some of the pressure that would otherwise arise if cutting-edge databases were primarily distributed to the public in hard copies.

130. *See, e.g.*, *Pro-CD v. Zeidenberg*, 86 F.3d 1447 (7th Cir. 1996).

131. *See, e.g.*, Roger L. Zissu, *Protection for Facts and Data Bases in the New World Order*, 1998 J. Copyright Soc'y U.S.A. 271; *infra* text accompanying notes 176-93.

132. *See, e.g.*, Hugenholtz, *supra* note 31; *see also* Maurer *supra* note 22; Rebecca S. Eisenberg & Arti Rai, *The Public and the Private in Biopharmaceutical Research*, paper presented at the Conference on the Public Domain, Duke University, November 9-11, 2001 (publication forthcoming 2002).

133. *See, e.g.*, Simon Chalton, *Database Right: Stronger Than It Looks?*, 2001 E.I.P.R. 296; Hugenholtz, *supra* note 31.

3.3.3 A Market-Breaking Approach[134]

While the E.U. authorities loudly proclaim the success of their Directive[135], the evidence is inconclusive and at most supports a finding that the Directive has, as yet, failed to produce the harmful long-term consequences that critics expect. The list of critics who predict such consequences has grown, however, and the longer that the *sui generis* database law is implemented in practice, the greater its socially harmful, over-protectionist consequences appear likely in the long term.

To see why critics in the United States fear the long-term consequences of the E.U.'s approach, it suffices to grasp how radical a change it would introduce into the domestic system of innovation and to consider how great the risks of such change really are. Traditionally, United States intellectual property law did not protect investment as such, a tradition that still has Constitutional underpinnings[136]. At the same time, the national system of innovation is premised on enormous flows of mostly government-generated or government-funded scientific and technical information (ST&I) upstream, which everyone is free to use[137], and on free competition with respect to downstream information goods.

The domestic intellectual property laws traditionally protect downstream bundles of information in two situations only: copyrightable works of art and literature, and patentable inventions. However, the following conditions apply:

– These regimes both require palpable creative contributions based on free inputs of information and ideas;
– They both presuppose a flow of unprotected information and data upstream;
– They both presuppose free competition with regard to the products of mere investment that are neither copyrightable nor patentable[138].

As previously observed, the E.U.'s Database Directive changes this approach, as would the pending parallel proposal, H.R. 354, to enact strong database rights in the United States. Specifically, these *sui generis* regimes confer a strong and, in the E.U., potentially perpetual exclusive property right on the fruits of mere investment, without requiring any creative contribution. They also convert data and information – the previously unprotectible raw materials or basic inputs of the modern information economy – into the subject matter of this new exclusive property right.

134. This section is based on Reichman & Uhlir (2002), *supra* note 33.
135. *See* Maurer, *supra* note 22.
136. *See, e.g., Kellogg Co. v. National Biscuit Co.*, 305 U.S. 111 (1938) (rejecting *International News Service v. Associated P*ress, 248 U.S. 215 (1918)); *Sears, Roebuck & Co. v. Stiffel Co.*, 376 U.S. 225 (1964); *Compco Corp. v. Day-Brite Lighting, Inc.*, 376 U.S. 234 (1964); *Bonito Boats, Inc. v. Thunder Craft Boats Inc.*, 489 U.S. 141 (1989); *Wal-Mart Stores, Inc. v. Samara Bros.*, 529 U.S. 205 (2000).
137. *See* NRC, Question of Balance, *supra* note 22,at 4-8, 9, 52-58.
138. *Id.*, at 9; *see generally* Reichman & Uhlir (2002), *supra* note 33.

The *sui generis* database regimes would thus effectuate a radical change in the economic nature and role of intellectual property rights (IPRs). Until now, the economic function of IPRs was to *make markets possible where previously there existed a risk of market failure due to the public good nature of intangible creations.* Exclusive rights make embodiments of intangible public goods artificially appropriable, they create markets for those embodiments, and they make it possible to exchange payment for access to these creations.

In contrast, an exclusive intellectual property right in the contents of databases *breaks* existing markets for downstream aggregates of information, which were formed around inputs of information largely available from the public domain. It conditions the very existence of all traditional markets for intellectual goods on:

– the willingness of information suppliers to supply at all (they can hold out or refuse to deal),
– their willingness not to charge excessive or monopoly prices (i.e., more than downstream aggregators can afford to pay in view of their own risk management assessment), and on
– the willingness and ability of information suppliers to pool their respective chunks of information in contractually constructed cooperative ventures.

This last constraint is perhaps the most telling of all. In effect, the *sui generis* database regimes create new and potentially serious barriers to entry to all existing markets for intellectual goods owing to the multiplicity of new owners of upstream information in whom they invest exclusive rights, any one of whom can hold out and all of whom can impose onerous transaction costs (analogous to the problem of multi-media transactions under copyright law). This tangle of rights is known as an anti-commons effect[139], and the database laws appear to be ideal generators of this phenomenon.

Under the new *sui generis* database regimes, in short, there is a built-in risk that too many owners of information inputs will impose too many costs and conditions on all the information processes we now take for granted in the information economy. At best, the costs of research and development activities seem likely to rise across the entire economy, well in excess of benefits, owing to the potential stranglehold of data suppliers on raw materials. This stranglehold will increase with market power if most databases are owned by sole-source providers. Over time, the comparative advantage from owning large, complex databases will tend progressively to elevate these barriers to entry[140].

139. *See* Michael A. Heller & Rebecca S. Eisenberg, *Can Patents Deter Innovation? The Anticommons in Biomedical Research*, Science, May 1, 1998.

140. *Accord* Benkler (2000), *supra* note 11. All nonprofit activities will be especially hard hit. Over time, lost opportunity costs in neglected research and development projects owing to these balkanized inputs could become staggering, and many forms of innovation may stagnate as a result. Even so, it will not be easy to document these lost opportunity costs, although the past experience of science in this regard will be repeated across the whole information economy. For details, see Reichman & Uhlir (1999), *supra* note 19.

The potential social gains of a strong database law cannot justify incurring these risks of disrupting or deforming the national system of innovation. It hardly seems logical to disrupt all existing markets for intellectual goods just to cure an alleged market failure for investments in a single type of intellectual good, i.e., noncopyrightable collections of information. At present, the U.S. dominates this market, and there is no credible empirical evidence of market failure that could not be cured by more traditional means[141].

The foregoing analysis reinforces the hypothesis that an exclusive property right is the wrong way to address the problem of legal protection for electronic databases, and it reconfirms the desirability of fashioning a modern liability rule that could avoid market failure without impoverishing the public domain. Supporters of strong database protection laws (and of strong contractual regimes to reinforce them[142]) believe that the benefits of private property rights are without limit, and that more is always better. They expect a brave new world in which these powerful legal incentives will attract huge resources into the production of electronic information tools[143].

In contrast, critics fear that an exclusive property right in noncopyrightable collections of data, coupled with the proprietors' unlimited power to impose electronic adhesion contracts in the course of online delivery, will compromise the operations of existing systems of innovation, which depend on the free flow of upstream data and information. In place of the explosive production of new databases that proponents envision, opponents of a strong database right predict a steep rise in the costs of information across the global information economy and a progressive balkanization or feudalization of that economy, in which fewer knowledge goods may be produced as more tithes have to be paid to more and more information conglomerates along the way[144]. In the critics' view, the information economy most likely to emerge from an exclusive property right in data will resemble models already familiar from the Middle Ages, when goods flowing down the Rhine River or goods moving from Milan to Genoa were subject to dozens, if not hundreds, of gatekeepers demanding tribute.

141. *See, e.g.*, Fewer, *supra* note 14.
142. *See, e.g.*, Raymond Nimmer, *Breaking Barriers: The Relation Between Contract and Intellectual Property Law*, 13 Berkeley Tech. L.J. (1998); Maureen O'Rourke, *Property Rights and Competition on the Internet: In Search of an Appropriate Analogy*, 16 Berkeley Tech. L. J. 561 (2001).
143. *See* E.C. Directive, *supra* note 5 (Recitals); Maurer, *supra* note 22 (describing and criticizing this thesis); Tyson & Sherry, *supra* note 14; Braunstein, *supra* note 67.
144. *Accord* Maurer, *supra* note 22; Maurer & Scotchmer, *supra* note 14; Benkler (2000), *supra* note 11.

4 MANAGING TRANSNATIONAL DATABASE PROTECTION WITHOUT HARMONIZATION: AN INTERIM SOLUTION

The European Commission wants other countries to emulate its Directive on the Legal Protection of Databases[145]. In 1996, the Commission unsuccessfully sought to persuade a WIPO Diplomatic Conference to adopt an international convention that would have codified a *sui generis* regime built around a strong exclusive property right[146]. This initiative was blocked by the combined efforts of scientists, universities, libraries, independent database publishers, and telecommunications companies who persuaded the U.S. Administration to withdraw its support.

While the future of database protection in the United States has yet to be decided, it nonetheless seems clear that the present Administration will find itself compelled to support some form of international database protection no matter which regime Congress enacts in the end. In a worldwide digitally networked environment, the ability of free-riding duplicators to download commercially valuable databases in any territory that afforded them no protection whatsoever and to redistribute the contents online at very low prices to willing purchasers in the rest of the world would frustrate even a policy of soft protection for electronic databases (if it should ultimately prevail)[147]. In the new information economy, in other words, the very existence of an unregulated global market place puts purely territorial intellectual property policies at risk of extraterritorial subversion and fosters a compelling need for some form of transnational regulatory action.

How to meet this challenge without succumbing to high-protectionist demands for uniform intellectual property standards that could adversely affect economic growth in both developed and developing countries is a key challenge for international intellectual property relations in the post-TRIPS environment[148]. The question of database protection thus presents an opportunity to forge cooperative multilateral action in intellectual property law that advances the global public interest without the harmonizing excesses that have elicited intense criticism of the TRIPS Agreement and related high-protectionist undertakings[149].

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145. *See* E.C. Directive on Databases, *supra* note 5, art. 11.
146. *See supra* note 4 and accompanying text; Reichman & Samuelson, *supra* note 15.
147. *See, e.g.*, Michael Freno, *Database Protection: Resolving the U.S. Database Dilemma with an Eye Toward International Protection*, 34 Cornell Int'l L. J. 165 (2001); Michael J. Bastian, Note, *Protection of "Noncreative" Databases: Harmonization of United States, Foreign and International Law*, 22 Boston Coll. Int'l & Comp. L. Rev. 425 (1999).
148. *See, e.g.*, J. H. Reichman, *From Free-Riders to Fair Followers; Global Competition Under the TRIPS Agreement*, 29 N.Y.U. J. Int'l & Pol. 11 (1996/1997) [hereinafter Reichman, *Free-Riders*]; J. H. Reichman *The TRIPS Agreement Comes of Age: Conflict or Cooperation with Developing Countries?*, 32 Case W. Res. J. Int'l L. 441 (2000).
149. *See, e.g.*, Peter Drahos, "Developing Countries and International Intellectual Property Standard-Setting", study prepared for the U.K. Commission on Intellectual Property Rights, February 2002;

In the rest of this article, I discuss both the risks of succumbing to a prematurely harmonized international regime of database protection and the need to avoid a "trade war" between high and low protectionists. I will then outline a proposal for a model umbrella treaty, concerning the international protection of databases, which is based on the solution earlier adopted in the Geneva Phonograms Convention of 1971[150]. This proposal could enable all countries to cooperate in interdicting certain forms of market-destructive conduct without creating barriers to entry or otherwise disrupting their national systems of innovation.

4.1 The Risk of Premature Harmonization

If the U.S. adopted a strong database protection law along the lines of H.R. 354 as outlined above, the differences between U.S. and E.U. law would be a matter of degree, but not of fundamental conceptual importance. In that event, other developed countries might feel constrained to follow suit – for example, Japan and Korea – whether or not their governments were persuaded that this solution actually embodied a proper policy response to the underlying problem[151]. The same holds true for smaller countries seeking closer trade affiliations with the E.U. or the U.S., who might have to accept an accommodation that exchanged high levels of database protection for concessions concerning greater market access[152].

On this scenario, a high-protectionist block installed at the heart of the international intellectual property system would enjoy significant advantages in developing any future blueprint for a multilateral regulatory solution. Only vigorous, persistent and entrenched opposition by countries opposed to a high-protectionist regime could then avoid an international framework modeled on joint E.U.-U.S. initiatives.

In theory, the developing countries could articulate an opponents' coalition to this end, in keeping with their general need to acquire both foreign technology and

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see also Peter M. Gerhart, *Reflections: Beyond Compliance Theory – TRIPS as a Substantive Issue*, 32 Case Western J. Int'l L. 357 (2000); J.H. Reichman & David Lange, *Bargaining Around the TRIPS Agreement*: *The Case for Ongoing Public-Private Initiatives to Facilitate Worldwide Intellectual Property Transactions*, 9 Duke J. Comp. & Int'l L. 11 (1998).

150. Convention for the Protection of Producers of Phonograms Against Unauthorized Duplication of Their Phonograms, Oct. 29, 1971, 25 U.S.T. 309 [hereinafter, Geneva Phonograms Convention].

151. Japan has so far waited to see the outcome of deliberations in the United States. However, the government of Korea has recently introduced a bill that would enact a strong exclusive property right in databases, along the lines of the E.U. model.

152. Besides its dealings with would-be affiliates, the E.U. includes a harmonized database regime in proposals for favorable trade agreements with Latin American countries. The U.S. has in the past followed a similar strategy under the North American Free Trade Agreement, and would continue its efforts to harmonize intellectual property protection under any proposed Free Trade Agreement of the Americas. *See generally* Susan K. Sell, Power and Ideas: North-South Politics of Intellectual Property and Antitrust (1998); Susan K. Sell, *Big Business and the New Trade Agreements: The Future of the World Trade Organization?, in* Political Economy and the Changing Global Order (Richard Stubbs & Jeffrey Underhill 2000).

the raw materials of the information economy at the lowest possible costs. In practice, the ability of the developing countries to oppose a common E.U.-U.S. harmonizing initiative, should they pursue it, seems doubtful.

As matters stand, these countries have showed little ability or inclination to master the intricacies and nuances of older, established intellectual property regimes – for example, the patent and copyright paradigms – so as to exploit the flexibility remaining in the still only partly harmonized international intellectual property standards of the TRIPS Agreement. Rather, they have been content, on the whole, to criticize the inequities of the TRIPS Agreement at the margins, especially with regard to so-called implementation issues, and to indulge in largely diversionary dreams about the potential benefits from exploiting traditional intellectual resources[153]. This inertia has left most developing countries dependent upon technical solutions that intergovernmental organizations controlled by the donor countries make available, and they are accordingly unprepared to play a leadership role in such a challenging area. Even if some developing countries were to muster sufficient expertise and initiative to form an international opponents' coalition, they would still find it difficult to organize as a block and to ensure that major players did not cut separate deals with the advanced industrialized countries[154].

For this and other reasons, it seems likely that, faced with a common E.U.–U.S. approach, the developing countries would fall in line, in the hopes of gaining some compensatory trade advantages in other areas. In that event, a relatively high and uniform level of database protection would prevail at the international level, a result which reduces uncertainty and lowers transaction costs. If, however, critics are right in predicting that the social costs of strong database protection will greatly outweigh any benefits in the long term, a premature but successful harmonization campaign could mean that the entire world ended up with a socially harmful modality of protection.

Such a sobering possibility merits further reflection. If it turns out that the E.U. Directive embodies nothing more than a combination of ignorant tinkering and special interest lobbying, then a mandatory, globalized regime along the same lines would ensure that every national system of innovation would sooner or later have to digest the fruits of a poisoned tree. In that event, any social gains accruing from uniform law would gradually be offset by the social costs of diminished access to data and information and by a progressive suffocation of those upstream processes of scientific discovery and technical innovation that we now take for granted. To put it bluntly, if the high-protectionist approach turned out to be a colossal blunder that

153. *See e.g.*, Carlos M. Correa, Intellectual Property Rights, the WTO, and Developing Countries 123-207 (2000); Jayashree Watal, Intellectual Property Rights in the WTO and Developing countries (2001); J. H. Reichman, *Taking the Medicine with Angst: An Economist's View of the TRIPS Agreement*, 4 J.I.E.L. 795 (2001) (reviewing Keith E. Maskus, Intellectual Property Rights in the Global Economy (2000)).

154. *Cf. supra* note 151 (case of Korea).

balkanized the worldwide flow of scientific and technical information, the fact that all countries now participated on an equal footing in the new feudalist information economy would only magnify the unintended social costs[155].

Aware of these risks, U.S. officials opposed to the E.U. model have taken the view that the U.S. must put forward a credible alternative in order to avoid the scenarios described above[156]. On this view, the benefits likely to accrue from articulating a second, less protectionist modality (whatever form it may take as a result of some compromise solution) would outweigh the costs of a socially unbalanced uniform law that produced universally harmful results. Because many influential stakeholders share this view, and it could prevail in the end, it is worthwhile to consider the possible implications at the international level that might flow from the existence of two different and competing models of database protection, one championed by the European Union and the other by the United States.

4.2 The Coming Database Protection War

In the event that the U.S. adopted a softer regime of database protection than that of the E.U., the E.U. might be tempted to fall back upon the material reciprocity clause it adopted in the Directive[157]. This provision was modeled on a similar clause inserted in the Semiconductor Chip Protection Act of 1984, which the U.S. unilaterally adopted and then sought – more or less successfully – to impose on the rest of the world[158]. Such a clause denies national treatment to foreign nationals or enterprises that have no operational base in the E.U. unless their countries of origin provide similar database protection to nationals of E.U. countries. It could thus expose foreign database proprietors to some of the risks of unbridled copying that the Database Directive sought to avoid with respect to E.U. citizens.

Such an initiative could have deleterious effects on the progressive development of international intellectual property law, however, and would almost certainly fail of its essential purpose in the end. The extent to which top-down harmonization projects, like that embodied in the TRIPS Agreement, will ultimately strengthen the global economic system remains to be seen[159]. It is well to remember, however, that the TRIPS Agreement mostly embodied backwards looking technical solutions that

155. *Cf.* Peter Drahos & John Braithewaite, Information Feudalism: Who Owns the Knowledge Economy? (2002).

156. Professor Justin Hughes, while working at USPTO in the period 1996-2001, deserves particular credit for the Clinton Administration's having articulated this policy.

157. *See supra* notes 52-53, and accompanying text.

158. Semiconductor Chip Protection Act of 1984, Pub. L. No. 98-620, 98 Stat. 3347 (1984), codified at 17 U.S.C. §901, 914; TRIPS Agreement, *supra* note 1, arts. 35-38.

159. For optimistic views, *see, e.g.*, Keith E. Maskus, Intellectual Property Rights in the Global Economy 143-69, 235-43 (2000); Gail E. Evans, Lawmaking under the Trade Constitution, 107-130 (2000); Graeme B. Dinwoodie, *A New Copyright Order: Why National Courts Should Create Global Norms*, 149 U. Pa. L. Rev. 469 (2000). *But see* Drahos, *supra* note 149; *infra* note 167.

had emerged from the crucible of trial and error after long periods of divergent state practice. The one thing we do know from two hundred years of empirical results is that national treatment has been the *sine qua non* of bottom up, socially sound evolutionary progress in new fields of intellectual property law[160].

National treatment imposes a soft but critical economic discipline on all the stakeholders who participate in an integrated marketplace. While ostensibly allowing normative freedom in shaping any given state's domestic intellectual property regimes, it exposes the domestic beneficiaries of unilateral protectionist incentives to the discipline of competition by foreign nationals who operate in less regulated, more open economic arenas. So long as all stakeholders benefit from a lowest common denominator that protects investors from market failure and that ensures a reasonable ability to appropriate the fruits of their investments, the requirement of national treatment acts as a cautionary brake or safety valve against domestic self-indulgence in unilateral protectionist experiments[161]. In other words, national treatment forces all the players to honestly evaluate different legal incentives and, by exposing any single player who exaggerates the level of unilateral incentives to global market discipline, it contributes to the experimental laboratory of trial and error at the national level from which sound international minimum standards of intellectual property protection may gradually and empirically emerge.

The absence of national treatment can, instead, produce an unhealthy protectionist environment with centripetal effects elsewhere. Exorbitant protection in one country, such as the E.U., on a condition of material reciprocity, can unleash latent free-riding interests in other countries, some of which may be emboldened to move to the opposite extreme and thus to legitimize local appropriation of foreign investments in this and other areas. Without the self-discipline of national treatment, the gradual crystallization of common measures to avoid market failure and to promote healthy competition everywhere are subtly undermined[162]. Attempts to corner the market for certain information goods by rigging legal monopolies in one

160. *See, e.g.*, 1 Stephen P. Ladas, Patents Trademarks, and Related Rights – National and International Protection 62-68, 269 (1975); Sam Ricketson, The Berne Convention for the Protection of Literary and Artistic Works 1886-1986 at 919-21 (1987); Thomas Dreier, *National Treatment, Reciprocity and Retorsion: The Case of Computer Programs and Integrated Circuits, in* GATT or WIPO? New Ways in the International Protection of Intellectual Property 63, 67-70 (F.-K. Beier & G. Schricker eds., 1989).

161. *See* J. H. Reichman, *Intellectual Property in International Trade: Opportunities and Risks of a GATT Connection*, 22 Vand.J. Transnat'l L. 747, 853-57 (1989) (citing authorities). Each state must weigh the gains that might accrue from the stimulus of unilateral intellectual property incentives against the potential losses on both local and foreign markets due to more competitive, less protected producers. Conversely, states that ignore legal incentives that turn out to stimulate important new creations elsewhere may find they lag behind the technological development curve precisely because they have under-incented similar activities in their domestic economies.

162. *See most recently United States – Section 211 Omnibus Appropriations Act of 1998*, Report of the Appellate Body, WT/DS202/AB/R, January 2, 2002 (stating that national treatment is the cardinal principle of the international intellectual property system) [hereinafter *United States – Section 211 case*].

group of countries may thus trigger retaliatory and self-serving measures to enhance the free-riding capacities of other countries, whose resort to nonreciprocity had otherwise been legitimated. In this situation, a determined group of countries could destabilize the database investment policies of others, who would find it difficult to prevent leakage from low to high-protectionist markets.

There is also a risk that developing countries will begin to articulate hybrid intellectual property regimes of their own in one field after another, including databases, and that they may progressively deny foreigners access to those regimes by invoking the E.U.'s own example. This is hardly a new risk. It was, indeed, the message that E.U. authorities conveyed to the U.S. in 1984, when they suggested that the reciprocity clause in the SCPA might turn out to be a grave political blunder[163].

Meanwhile, a material reciprocity clause will not seriously deter U.S. database companies from operating in Europe nor will it bring the U.S. into line. On the whole, European courts applying the domestic database regimes have gone out of their way to recognize alternative grounds of protection available from unfair competition and copyright laws[164]. These forms of protection remain available to all U.S. companies even if they are denied access to the *sui generis* database regimes. At the same time, E.U. companies may become vulnerable to the products of more competitive conditions in the U.S. and elsewhere, especially with regard to follow-on applications in which material taken from an existing database is combined with new matter and new investments to produce improved databases for the same or distant market segments.

The E.U. also remains heavily dependent on the U.S. for large amounts of data, especially government-generated and government-funded data. If the E.U. were too aggressively to enforce its material reciprocity clause and were to insist, for example, on charging non-profit users in the U.S. for kinds of data that are supplied to the E.U. gratis at present, the result would put severe strains on preexisting modalities for data-sharing that have long been in place[165]. In such a case, authorities in the E.U. should expect that the U.S. government would begin to retaliate by charging E.U. users enough for its data to offset the costs imposed on U.S. users by E.U. suppliers of comparable data. By dint of such a "poison pill" defense, in other words, consumers in E.U. member states could end up defraying the costs of data that their own private or public sectors were unwisely imposing upon both the public and private sector in the U.S. Unfortunately, in such a retaliatory climate, the data-sharing ethos of the scientific and research communities would certainly suffer, and the gaps in worldwide database repositories that have already begun to appear are likely to grow larger[166].

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163. *See, e.g.*, Dreier, *supra* note 160. How free states are to avoid national treatment under new hybrid regimes in the face of the residual national treatment clause of the Paris Convention for the Protection of Industrial Property remains to be seen. *See United States – Section 211 case*, *supra* note 162.
164. *See* Hugenholtz, *supra* note 31.
165. *See, e.g.*, Reichman & Uhlir (2002), *supra* note 33.
166. *See* NRC, Question of Balance, *supra* note 22; Reichman & Uhlir (2002), *supra* note 33.

The E.U., strong as it is, lacks the power to impose its model of database protection on the rest of the world by dint of its material reciprocity requirement. If good sense and self-restraint fail, the likely result of a database war would be a renewal of free-riding practices in many developing countries and a resort to "poison pill" retaliatory tactics by both public and private entities in the U.S. This scenario suggests that, unless one side succeeds in persuading the other of the virtues of its respective model, ways must be found to enable both models to coexist at the international level with a minimum of friction.

4.3 An Umbrella Treaty with a Menu of Legal Options

Uniform international intellectual property standards cannot be achieved without consensus. Efforts to impose uniform minimum standards of protection without such a consensus discredit and ultimately destabilize the system as a whole. No matter which Great Power assumes the universalist mantle – and it varies from century to century – that vision of international intellectual property law is, and remains, what Stephen Ladas described it decades ago, namely, a "polite form of economic imperialism"[167].

4.3.1 The Need for a Laboratory Approach

Harmonized law is, of course, not the same as uniform law. The elaboration of a globalized marketplace logically entails a corresponding drive to eliminate market distortions rooted in territorial laws. The TRIPS Agreement of 1994, with all its rough edges, represents a case in point[168]. However, the drive for harmonization must be handled with extreme caution when it concerns new subject matters of protection regarding which there is relatively little historical or empirical evidence to support a consensual regulatory framework. There is, in fact, much that we do not know about the economic logic of intellectual property rights, and this ignorance is compounded when the issue touches deviant or hybrid regimes that break with the dominant patent and copyright paradigms[169].

167. *See* Marci A. Hamilton, *The TRIPS Agreement: Imperialistic, Outdated and Overprotective*, 27 VAND. J. TRANSNAT'L L. 613 (1996); *see also* A. Samuel Oddi, *TRIPS-Natural Rights and a "Polite Form of Economic Imperialism"*, 29 VAND. J. TRANSNAT'L L. 415 (1996).

168. *See* Fred Abbott, *Protecting First World Assets in the Third World: Intellectual Property Negotiations in the GATT Multilateral Framework*, 22 VAND. J. TRANSNAT'L LAW 689 (1989); Marshall Leaffer, *Protecting United Sates Intellectual Property Abroad: Toward a New Multilateralism*, 76 IOWA L. REV. 273 (1991). *See also* Rochelle Cooper Dreyfuss & Andreas Lowenfeld, *Two Achievements of the Uruguay Round: Putting TRIPS and Dispute Settlement Together*, 37 VA. J. INT'L L. 275 (1997). The TRIPS Agreement was largely a backwards looking document that addressed measures on which a broad consensus had long been reached at the technical level, but that had remained unimplemented at the international level owing to political obstacles that only compensatory trade concessions were able to remove.

169. *See generally* Reichman, *Legal Hybrids*, *supra* note 36. Most scholars uncritically assume that the logic of patents and copyrights (which they know) "more or less" applies to hybrid regimes (which

Apart from these deep-seated conceptual problems, differences of opinion concerning new subject matters of protection also reflect different social and political contexts, different cultural traditions, different economic approaches, and different value judgements about how production should be organized[170]. While the need to respect differences of this kind constitutes a truism of enlightened intellectual property discourse in general, that truism becomes compelling when the proposed object of protection turns out to be facts, information, and data – the raw material of the public domain, which U.S. courts and the Congress have consistently refused to protect under preexisting intellectual property laws[171].

The E.U. Commission, operating as it does under a well-known "democratic deficit", may continue to downplay concerns about restraints on free competition, research, and freedom of expression that its Database Directive has triggered. These concerns are much harder to ignore in the United States, where intellectual property rights are constitutionally regulated and where the need to reconcile such rights with the larger public interest in competition, research, and free speech has been enshrined in a series of Supreme Court decisions[172]. Moreover, scholars and policymakers everywhere should be concerned about the implications for democratic discourse of any regime that impedes access to facts, information, and data that are the raw materials of all other intellectual creations[173].

Against this background, one cannot deny that proposals to establish exclusive property rights in noncopyrightable compilations of facts represent the single most sensitive subject matter ever to enter the canon of world intellectual property law. The self-serving claims of the Commission that the database law "is working well", unsubstantiated as they are by any serious theoretical, economic or empirical

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they know little or nothing about); and legislators have blindly followed the flawed historical models established in the nineteenth century, namely, the domestic design and utility model laws. I have elsewhere depicted these models as a false start that fails to solve the core problem of follow-on applications of small-scale innovation in general; and I have challenged legal theory to consider that what is most needed today is a new kind of liability rule that would operate as a floating or "portable" trade secret law. *See esp.* Reichman, *Green Tulips, supra* note 38.

170. *See, e.g.*, James Boyle, *The Second Enclosure Movement and the Construction of the Public Domain*, paper presented at the Conference on the Public Domain, Duke University, November 9-11, 2001 (publication forthcoming 2002); Yochai Benkler, *Freedom in the Commons: Towards a Political Economy of Information*, Second Annual Meredith and Kip Frey Lecture in Intellectual Property, Duke University, March 26, 2002. *See also* James Boyle, Shamans, Software and Spleens: Law and the Construction of the Information Society (1996); Lawrence Lessig, The Future of Ideas: The Fate of the Commons in a Connected World (2001).

171. *See, e.g.*, Heald, *supra* note 39; Benkler (1999), *supra* note 11; *see also* Hamilton, *supra* note 39.

172. *See supra* note 136 and accompanying text.

173. *See esp.* David Lange, *Recognizing the Public Domain*, 44 Law & Comtemp. Probs. 147 (1981); Jessica Litman, *The Public Domain*, 39 Emory L. J. (1990); Neil Weinstock Netanel, *Copyright and a Democratic Civil Society*, 106 Yale L. J. 283 (1996). *See generally* Papers presented at the Conference on the Public Domain, Duke University, November 9-11, 2001 (publication forthcoming 2002).

studies[174], only make opponents elsewhere stiffen their resolve to prevent special interests from cornering the markets for the raw materials of the information economy.

It follows that the best outcome for the foreseeable future is a relatively prolonged period of non-uniform, unharmonized approaches to the question of legal protection for non-copyrightable databases. During this period, states should remain free to experiment with different approaches consonant with their different economic and social environments, which should, in turn, give rise to Ladas' laboratory effect and allow different solutions to compete for acceptance on the basis of their empirical records[175]. Such a course of action could, however, deny investors in database production many of the benefits that global regulation makes possible. Besides creating serious obstacles to international trade, a total lack of consensus could result in socially costly under-investment if the liberty to experiment in some countries made it impossible for database producers to prevent free-riding appropriations in other countries, especially those with access to a networked environment.

4.3.2 An Interim Solution

The question then becomes how to maximize local freedom to experiment with different modalities of database protection while at the same time avoiding or minimizing undue distortions to trade. The relatively short history of intellectual property law suggests the answer. When universalist ambitions fail, and there yet remains a common interest in regulating major subject matter areas that transcend territorial intellectual property laws, the time-tested solution is to base international protection on a few core principles that command universal respect. By the same token, more detailed and specific standards of protection must be deferred until the international community has the opportunity to accumulate and evaluate a wealth of empirical knowledge about the different local approaches to database protection undertaken in the interval.

The model that most logically responds to this solution is that of the Convention for the Producers of Phonograms Against Unauthorized Duplication of Their Programs ("Geneva Phonograms Convention"), which was opened for signature on October 29, 1971[176]. The object of this treaty was "to fight the ever-growing practice of record and tape piracy spawned by new reproductive technologies"[177]. Another, more protectionist treaty had previously been developed on an experimental basis in 1961, namely, the International Convention for the Protection of Performers, Producers of Phonograms and Broadcasting Organizations of 1961 ("Rome Convention"), which entered into force on May 18, 1964[178]. However, the Rome Convention,

174. *See* Maurer, *supra* note 22.

175. *See supra* text accompanying notes 160-167.

176. *See* Geneva Phonograms Convention, *supra* note 150.

177. International Treaties on Intellectual Property 451 (Marshall A. Leaffer ed., 1997).

178. *See* International Convention for the Protection of Performers, Producers of Phonograms, and Broadcasting Organizations, opened for signature October 26, 1961, 496 U.N.T.S. 43 [hereinafter

which covered some of the same ground as the Geneva Convention, created substantive rights, known as neighboring or related rights, in phonograms (sound recordings)[179], which many states, including the United States, had declined to recognize. In contrast, the Geneva Phonograms Convention adopted a minimalist liability rule against the wholesale duplication of phonograms, but it did not mandate the creation of any universally recognized intellectual property rights[180].

The adoption of a liability rule against wholesale duplication permits considerable flexibility with respect to modalities of implementation, and the Geneva Phonograms Convention nicely illustrates this point. First, national treatment does not, as such, apply[181], without all the shillyshallying in this respect that became necessary under the Rome Convention[182]. Second, the Geneva Phonograms Convention allows states broad freedom to choose the means of repressing "the making of duplicates without the consent of the producers"[183]. It accomplishes this goal by specifying a menu of legal options that include copyright law, neighboring rights law, unfair competition law, and criminal law, from which states are free to choose[184].

The model used in the Geneva Phonograms Convention addresses a number of other issues that even a minimalist regime of database protection should take into account, and it offers interesting solutions that could be adapted to the database milieu. For example, the language that protects unauthorized duplication of phonograms is circumscribed by a proviso that any unauthorized "making or importation" should be "for the purpose of distribution to the public, and against the distribution of such duplicates to the public"[185]. Private uses are thus left unimpeded, and tension with the nonprofit sector is reduced, although not eliminated, since this provision begs the question of distribution to the public without profit.

The Phonograms Convention does address nonprofit activities more directly in Article 6, which allows states that implement their obligations either by means of exclusive rights or by means of criminal sanctions to apply the same kind of limitations as are permitted under their respective copyright laws. This provision allows states even to impose compulsory licenses when "the duplication is for use solely for the purpose of teaching or scientific research" and other limiting conditions are met[186].

Rome Convention]. *See also* World Intellectual Property Organization, Guide to the Rome Convention and to the Phonograms Convention (1981).

179. *See* Rome Convention, *supra* note 178, arts. 5, 10-12.
180. *See* Geneva Phonograms Convention, *supra* note150, art. 2 (obliging each contracting state to "protect producers of phonograms who are nationals of other Contracting States against the making of duplicates without the consent of the producer and against the importation of such duplicates".). Only duplicates intended for public distribution are actionable. *See id.*
181. *See* Geneva Phonograms Convention, *supra* note150, arts. 2-3.
182. *See* Rome Convention, *supra* note 178, arts. 5, 16.
183. *See* Geneva Phonograms Convention, *supra* note 150, art. 2.
184. *See id.*, art. 3; Leaffer, *supra* note 177, at 451.
185. *See* Geneva Phonograms Convention, *supra* note 150, art. 2.
186. *Id.*, arts. 6, 6(a)-(c).

It appears that states choosing to implement the rule against wholesale duplication of phonograms under their domestic unfair competition laws may not directly apply the exceptions allowed under Article 6, perhaps because unfair competition laws are usually drawn in such a way as to limit their applicability to competitive situations in which uses by nonprofit entities might ordinarily remain free. Nevertheless, the importance of the nonprofit sectors that depend on access to data is so great in the advanced technology-exporting countries that they would need express exceptions and immunities in any minimalist database treaty that aimed to repress wholesale duplication under the domestic unfair competition laws[187]. It is worth noting in this regard that H.R. 1858 – the U.S. model closest to the Geneva Phonograms Convention – attempts to close this loophole[188].

The duration clause under the Geneva Phonograms Convention likewise provides an interesting model for the database problem. The first sentences of Article 4 clearly allow states to contemplate an indefinite duration, which is consistent with a pure unfair competition approach. For better or worse, this type of provision could thus accommodate either H.R. 1858 in the U.S., which proposes an unfair competition approach for an indefinite period of time, or the E.U.'s exclusive property right, which perversely lasts forever. At the same time, Article 4 goes on to recognize that many states will choose to impose a fixed duration for the protection of phonograms, and here a minimum standard of twenty years was adopted[189]. An analogous provision adopting a term of fifteen years for databases could reconcile either of the models pending in the U.S. with the E.U. Directive.

The chief advantage of using the Geneva Phonograms Convention as a model for an interim solution is that it could eliminate the ability of free riders to drag down the level of global investment in databases, especially complex electronic databases, without allowing owners of existing databases (or emerging conglomerates) to colonize the global information commons by dint of a prematurely created and conceptually unsound exclusive property right. Those states that chose to repress wholesale duplication of databases by means of liability rules sounding in unfair competition law (or more refined "compensatory liability regimes" along the lines I advocate[190]), would remain free to do so, and the economic and empirical consequences of their choices would become clearer over time. However, participating states would not remain free to condone the assaults of free-riding duplicators, which could distort the global marketplace for commercialized data exchanges[191].

187. *See, e.g.,* Reichman & Uhlir (1999), *supra* note 19.
188. *See supra* note 108 and accompanying text.
189. *See* Geneva Phonograms Convention, *supra* note 150, art. 4.
190. *See supra* notes 36, 38, 123 and accompanying text.
191. *See supra* note 180. Nothing would impede the developed countries from pressing for such a minimalist regime to figure as an effort to clarify the inchoate obligations of states under art. 10*bis*(2) of the Paris Convention. *See* Paris Convention for the Protection of Industrial Property, *done* March 20, 1883, *as last revised* July 14, 1967, 21 U.S.T. 1583, 828 U.N.T.S. 305, art. 10*bis* (2).

Over time, such a solution would provide all countries with a breathing space in which to evaluate the costs and benefits of the different options under experimentation. If the perpetual exclusive property right unleashed by the European Commission turns out to be an enlightened tool for the development of the information economy in the twenty-first century, its merits should become progressively clear over time. If, instead, it proves to be a "monstrous caricature of true intellectual property laws"[192], one that expresses the worst features of an undemocratic, non-transparent and all too corruptible political process, then the social costs it imposes on healthy competition and technological development should also become evident over time.

In either case, given a period of breathing space premised on a minimalist liability rule against wholesale duplication, states should be able to ascertain those positive aspects of the different protective models that interest them as well as the negative aspects they wish to avoid. Over time, it should become possible progressively to develop a worldwide database law through a process of negotiated solutions drawn from the empirical laboratory of trial and error, and eventually this process could be further enhanced by bringing it within the WTO framework[193], where social costs in one area may be offset by trade concessions in others.

4.4 Reducing Friction During an Interim Period of Experimentation

The Geneva Phonograms Convention of 1971 seems already to have inspired the drafters of the proposed minimalist unfair competition approach in the United States, namely H.R. 1858[194]. If that proposal emerged as the basis for a compromise solution in the U.S., the Phonograms Convention model becomes the logical tool for reconciling the differences that would then exist between the E.U. and the U.S.[195]. Even if the U.S. were ultimately to adopt a hard line, *sui generis* exclusive property right, like that pending in H.R. 354[196], the Geneva Phonograms model affords the most frictionless method of reconciling an E.U.–U.S. high protectionist model with any minimalist regime that might (hopefully, to my mind) emerge from the rest of the world.

4.4.1 Tolerating Differences in the Levels of Protection

In any event, steps must be taken to preserve comity and reduce friction between states having different approaches during what could become a fairly long

192. Reichman & Samuelson, *supra* note 15, at 164.
193. *Cf., e.g.,* TRIPS Agreement, *supra* note 1, art. 39.
194. *See supra* note 72.
195. *Cf.* Freno, *supra* note 147, at 225; Bastian, *supra* note 147, at 463.
196. *See supra* note 70.

experimental phase. A *sine qua non* of productive international cooperation would then require the E.U. to forego its material reciprocity clause and to take other steps to avoid even the semblance of a trade war with respect to database protection[197].

Assuming that good sense prevailed and that database wars did not break out, then one should expect to see different regional solutions to the database problem emerge over time. The European Commission will continue to impose its perpetual exclusive property right on its own member states and on a growing number of would-be affiliates. A solid block of some fifty countries thus seems likely to form in support of the high-protectionist model. If, meanwhile, the U.S. opted for a softer alternative regime, it would logically attempt to win adherents to that regime in its own regional trading spheres, such as NAFTA[198] and the proposed Latin American Free Trade Agreement. Whether Asian and African groups would coalesce around either of these competing models or articulate models of their own remains to be seen.

In this state of affairs, access to protected databases and the relevant use rights will require careful monitoring and negotiation from one country to another, and from region to region, as has long occurred with respect to industrial designs. In particular, the status of follow-on applications could vary considerably from one jurisdiction to another. While a strong, exclusive derivative work right will often (but not always) prevail in the European Union[199], the status of follow-on applications in other countries that adopt an unfair competition approach may vary considerably with the extent of borrowing and individual investment in specific cases.

Consider, for example, that even if Congress enacted an unfair competition approach like that in H.R. 1858, the drafters of that bill have unwisely conceded a pseudo-derivative work right by making duplication of a discrete segment a second ground for infringement, if other criteria concerning the impact on competition were also satisfied[200]. Other countries, including the developing countries, might not accept this concession, even if they signed onto a core principle that prohibited duplication of a protected database as a whole. In that event, the actionability of any given taking of a discrete segment of a protected database would vary with other fact specific elements of the case at hand, such as the level of investment made by the second comer and the extent to which his or her follow-on application competed on

197. The European Commission should understand that its own interests are best served by such a cooperative approach. *See supra* text accompanying notes 165-66 (discussing the E.U. dependence on massive imports of data from the U.S., especially data provided by U.S. government agencies at low, marginal costs of delivery), and that neither country stands to gain from damaging each other's basic research and development prospects.

198. North American Free Trade Agreement Between the Government of the United States, the Government of Canada, and the Government of the United Mexican States, December 17, 1992, 32 I.L.M. 289 (1993).

199. *See, e.g.*, Chalton, *supra* note133; *but see* Hugenholtz, *supra* note 31 (discussing "spin off" defense in Netherlands case law).

200. *See supra* notes 103-04 and accompanying text.

a distant market segment rather than head-to-head in the same market segment[201]. At the very least, a considerable period of time might have to elapse before courts following an unfair competition approach succeed in elaborating clear guidelines applicable to the bulk of such cases even in the domestic laws.

In this connection, I cannot resist pointing out how much the compensatory liability principle I have elsewhere advocated as the correct solution to the database problem helps to simplify this and other thorny ancillary issues[202]. Under such a regime, the database producer should always have a right to compensation for data borrowed by a third-party for follow-on applications during a relatively short period of time. However, the database originator should never have the right to prevent bona fide follow-on applications requiring independent investment so long as a reasonable royalty is paid for the data borrowed from the first comer's product. Needless to say, the first comer remains equally free to borrow back data from the second comer's own follow-on applications for similar competitive purposes, in return for similar compensatory payments[203]. If developing countries decided, on their own initiative, to experiment with a compensatory liability regime, even though neither the E.U. nor the U.S. had endorsed it, we would have a true laboratory trial of all the principal solutions on the table, and a real opportunity to test empirical results over time.

During this transitional period, one should expect database producers to rely heavily on self-help measures that could limit their exposure to the vagaries of local law. Foremost among these measures are technological anti-circumvention devices that secure access to their databases and standard form contracts that regulate the use of data made available to the public, once access had otherwise been lawfully attained. These contractual practices could to some extent limit the disparities of treatment that might otherwise flow from different levels of protection in different groups of countries[204].

Contractual restraints on use will, however, themselves be limited by the extent to which different regimes apply different public interest exceptions; by the willingness of different states to allow contractual overrides of these exceptions; and, above all, by different concepts of misuse, including misuse of adhesion contracts[205]. Countries that fear an excessive consolidation of powerful database suppliers, or that fear the market power of sole-source providers wherever they operate, may thus opt for more pro-competitive regulatory measures than in other, more pro-investor

201. *See, e.g.*, Reichman & Samuelson, *supra* note 15, at 139-145.
202. *See supra* note 123 and accompanying text.
203. *See generally* Reichman, *Green Tulips*, *supra* note 38. This solution is not to be conceptualized as a "compulsory license", because it does not cut back upon any exclusive property right to make follow-on applications in the first place. Rather, the right to compensatory liability becomes an *entitlement*, but one that does not include the right to hold out or otherwise prevent second comers from borrowing the originator's data for purposes of follow-on investments, in return for compensatory contributions to the first comer's own costs of research and development.
204. *See, e.g.*, Maureen O'Rourke, *supra* note 142.
205. *See, e.g.*, Reichman & Franklin, *supra* note 27; Lemley, *supra* note 28.

countries, and this could further make the status of follow-on applications vary considerably from one regime to another. Some friction will necessarily result when follow-on applications originating from different systems compete head to head in third countries, but it is hard to see how those third countries could fail, on the whole, to benefit from such competition.

Besides reflecting different levels of competition dependent upon the different legal responses to follow-on applications, the price structure in different countries will necessarily vary with the level of per capita GDP, as already occurs with respect to physical goods and to more traditional intangible creations. One can therefore expect widespread price discrimination, with a view to making data available to poorer countries at prices below those practiced in rich countries and also to avoiding claims of abuse, like those being leveled at distributors of pharmaceutical products[206]. At the same time, pressure will build to prevent re-exports of data and the leakage of discounted data from poor countries to markets where higher prices prevail. Controversies about so-called parallel imports of data sold cheaply abroad thus seem likely to surface in this context[207].

In this connection, developing countries may sooner or later also consider the need to apply compulsory licenses to free up commodified data deemed essential to national development goals. Here, again, friction can be reduced, but not altogether eliminated by adoption of the interim model discussed above[208] and by common recognition of a compensatory principle, although the scale of compensation must clearly bear some rational relation to the capacity of single countries to pay.

The application of competition laws (i.e., antitrust laws) to database producers operating under an umbrella treaty would also continue to vary from country to country, as it does today even under the TRIPS Agreement[209]. Absent greater harmonization of such laws under the Doha Round of Multilateral Trade Negotiations[210], there are limits to what can be done to limit these disparities. One

206. *Cf., e.g.*, Frederick M. Abbott, "The TRIPS Agreement, Access to Essential Medicines and the Doha Ministerial Conference", Occasional Paper 7, prepared for the Quaker United Nations Office, Geneva (2001); Frederick M. Abbott, "Compulsory Licensing for Public Health Needs: The TRIPS Agenda at the WTO After the Doha Declaration on Public Health", Occasional Paper 9, prepared for the Quaker United Nations Office, Geneva (2001).

207. *Cf.* Frederick M. Abbott, *First Report (Final) to the International Trade Law Committee of the International Law Association on the Subject of Parallel Importation*, 1 J.I.E.L. 607 (1998). Whether importing countries that had opted for a liability rule sounding in unfair competition law could, in good faith and without some logical incoherence, strictly apply a "first sale" doctrine against countries that adopted an exclusive property right remains to be evaluated.

208. *See supra* text accompanying notes 176-93. While contractual, technical, and legal sanctions can restrict such activities when they transpire within a given territory, they cannot necessarily regulate activities in third countries with different regulatory frameworks and different needs to access data from abroad.

209. *See* TRIPS Agreement, *supra* note 1, arts. 8, 40.

210. *See* Ministerial Declaration, Interaction Between Trade and Competition Policy, ¶23, WT/MIN(01)/DEC/1, adopted at Doha WTO Ministerial, November 14, 2001.

solution would be to adopt common standards governing misuse as part of a minimalist umbrella treaty, which courts in different countries could apply to differing fact situations as they see fit[211]. If, at the end of the day, an interim umbrella treaty left states free to apply both the competition rules and specific rules on compulsory licensing that best suited their national development needs, pending some future negotiating round, this would not differ appreciably from the situation under the TRIPS Agreement's patent provisions, which leave states great leeway as regards both competition law in general and compulsory licenses in particular[212].

Another contentious issue, and one that greatly aggravates the sole-source problem, is related to the different philosophies surrounding government-generated and government-funded data in the E.U. and the U.S. In the E.U., governments generate proportionately less data than in the U.S., and they often want to exercise "crown rights" in their data, on a par with private vendors. In the U.S., government provides massive amounts of data at the marginal costs of delivery, and many regard the provision of these data as a critical component of the national system of innovation and as a critical determinant of the technological prowess of that system[213]. Even in the U.S., however, pressures to outsource or commodify more government data are building, and the potential impact of these pressures must be taken into account.

On any scenario, these differences in the role of governments could become constant sources of friction, although one way to attenuate them would be to stipulate broad understandings concerning research uses of such data. Another means of reducing friction on this score might be to develop novel approaches to preserving a dynamic public domain for certain purposes, especially research and democratic discourse, in order to promote public-interest uses of data without necessarily discouraging private sector commodification. These topics are more fully explored below.

4.4.2 A Contractually Reconstructed Public Domain for the Information Society

At the end of the nineteenth century, the very concept of exclusive property rights in intangible creations was controversial. The industrial revolution, whose watchword was free competition, had fulfilled the promise of innovation and economic growth that the liberation of private enterprise from the tyranny of feudal privileges and corporate guilds had bred[214]. If, over time, the social benefits that accrue from

211. Carefully elaborated proposals along these lines are incorporated into H.R. 1858, *supra* note 72, the proposed unfair competition model developed in the U.S., and their incorporation into an umbrella treaty at the international level would constitute a real accomplishment. *See supra* notes 112-13 and accompanying text.

212. *See* TRIPS Agreement, *supra* note 1, arts. 8, 30-31, 40; *Canada-Patent Protection of Pharmaceutical Products*, Report of the Panel, WT/DS114/R, March 17, 2000.

213. *See* Reichman & Uhlir (2002), *supra* note 33; Bob Davis, *The Outlook – Why Europe Trails U.S. in High Tech Innovation*, Wall Street Journal *(April 1, 2002)*.

214. *See, e.g.*, Oddi, *supra* note 167. Hostility to new, legislatively created legal monopolies was strong

defending producers of intellectual goods from free-riding appropriators have become more clearly recognized, the need to balance legal incentives to create against the public interest in competition, research, and freedom of speech has become equally well established. In Europe as in the United States, the common thread underlying this accommodation of public and private interests was the primal character of the public domain, from which all intellectual creators withdrew their inputs and to which all intellectual creations were ultimately consigned[215].

By the end of the twentieth century, these premises were everywhere under attack. The notion that private property rights were inherently more productive than legal forms of public regulation had been carried to great lengths in regard to the production of physical goods, and similar principles had seeped uncritically into the domain of intangible creations as well, under the slogan that intellectual property is not different from other forms of property[216]. That slogan ignores the precise behavioral characteristics of intangible creations – particularly their ubiquitous, nonrivalrous, and inexhaustible character – that clearly do distinguish them from physical goods. It ignores the vast nonprofit sector of activities that processes the raw materials of intellectual creations and that aggregates these raw materials into distinct packets of knowledge and information goods. It further ignores the central role of the public domain in generating the upstream flows of data and information from which both the public and private sectors necessarily draw in order to produce the downstream applications of knowledge goods that attract intellectual property rights[217].

The Directive on the legal protection of databases, launched by the European Commission in 1996[218], carries the concept of private intellectual property rights to the most extreme lengths history has ever witnessed. It establishes a perpetual exclusive property right in the upstream collections of data and information that are the raw materials of the downstream applications that previously entered the intellectual property system. It then abolishes the very concept of a public domain and ensures that private information conglomerates, built up over time, will progressively own and control an ever greater share of the data and information that has hitherto been freely available to entrepreneurs and researchers alike.

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enough to cause some European countries to repeal existing patent laws and to cause others to defer the enactment of such laws. *See, e.g.*, Fritz Machlup & Edith Penrose, *The Patent Controversy in the Nineteenth Century*, 10 JOURNAL OF ECONOMIC HISTORY 1 (1950).

215. *See, e.g.*, Boyle (2000), *supra* note 170; Lawrence Lessig, *The Architecture of Innovation*, paper presented at the Conference on the Public Domain, Duke University, November 9-11, 2001 (publication forthcoming 2002).

216. *See, e.g.*, Julie E. Cohen, *Lochner in Cyberspace: The New Economic Orthodoxy of "Rights Management"* , 97 MICH. L. REV. 462 (1998) (criticizing this movement).

217. *See generally* Pamela Samuelson, *Digital Information, Digital Networks, and the Public Domain*, paper presented at the Conference on the Public Domain, Duke University, November 9-11, 2001 (publication forthcoming 2002).

218. *See supra* note 5.

In evaluating this development, however, it is well to remember that the E.U.'s Database Directive, although an extremely deviant form of intellectual property protection, is not the only assault on the public domain, nor would the historic role of the public domain necessarily be preserved if such a right were repealed or abolished. This author has elsewhere compiled a list of some twenty-three developments – legislative, technical, and economic – which in different ways all encroach upon the historic functions of the public domain[219] and give rise to what James Boyle has called the Second Enclosure Movement[220].

Among these developments is the fact that, when information is digitized and transmitted via networked telecommunications media, the power of producers to control the terms and conditions of use by combining technical protection devices (especially encryption devices) with standard form adhesion contracts becomes virtually unlimited, except in so far as courts or legislatures otherwise provide for the public interest. In other words, cyberspace distribution of information restores the power of the two-party deal to the point where intellectual property rights are less needed to avoid market failure than they were, say, when the printing press was invented[221]. Under these conditions, a primary effect of any new intellectual property right may be to strengthen the de facto monopoly power of providers by superimposing a legal monopoly that makes it ever harder for users, consumers, and researchers to elicit public interest safeguards at either the judicial or the legislative level.

Without delving further into these matters here, the point is that the nonprofit sectors of the modern economy that have heretofore played such a critical role in many national systems of innovation face new and serious threats under these conditions. On the one hand, they can, of course, join the enclosure movement and profit from it. Thus, universities that now transfer publicly funded technology to the private sector can also profit from the licensing of databases[222]. On the other hand, the ability of researchers to access and aggregate the information they need to produce upstream discoveries and innovations may be compromised both by the shrinking dimensions of the public domain and by the demise of the sharing ethos in the nonprofit community, as these same universities and laboratories see each other as competitors rather than partners in a common venture[223].

Any long-term solution must accordingly look to the problems of the research communities and of nonprofit users of data generally, in an increasingly commodified information environment. As commodification proceeds and intellectual property rights multiply, the functions of the public domain that are now

219. *See* Reichman & Uhlir (2002), *supra* note 33.
220. *See* Boyle (2002), *supra* note 170.
221. *See* Reichman & Franklin, *supra* note 27.
222. *See, e.g.*, Eisenberg & Rai, *supra* note 132.
223. *See, e.g.*, Reichman & Uhlir (1999), *supra* note 19.

taken for granted may have to be reconstructed contractually by the nonprofit actors engaged on specific projects[224].

If the research communities decide to address these challenges frontally, they may seek, of their own initiative, to recreate by consensus and agreement, a dynamic public domain that could ensure a continuous flow of raw materials through the national innovation systems, notwithstanding the pressures for commodification in the private sector. In other words, universities and laboratories that depend on sharing access to data may have to stipulate their own treaties and arrangements to ensure unimpeded access to commonly needed raw materials in a public or quasi-public dimension, even though each institution separately engages in transfers of information to the private sector for economic gain[225].

This idea of constructing a kind of nature conservancy or voluntary "E-commons" for public access to scientific and technical information is currently under investigation in the United States[226]. As applied to scientific research, this project envisions the creation of a horizontal level in which data and information could be exchanged freely and efficiently for nonprofit purposes without impeding further commercialization at the vertical level. Ideally, both funding agencies and universities would participate in constructing contractually the rules to govern this "E-commons" and the means of administering it[227].

This project was first discussed at a major conference on the public domain, held at Duke University Law School in November, 2001[228], and the National Academies will sponsor a follow-up workshop on this same topic in September, 2002. If these initiatives prove successful, then similar efforts would have to be undertaken at the international level as well, in order to extend the benefits of a dynamic e-commons to scientists and other research communities around the world.

Résumé

La protection des bases de données pose un problème majeur de politique législative en matière de propriété intellectuelle. D'un côté, la protection par le droit d'auteur n'est ni suffisante ni conforme aux principes du droit d'auteur. D'un autre côté, l'introduction de nouvelles formes de protection va à l'encontre des structures traditionnelles de la protection internationale de la propriété intellectuelle et risque soit de résulter en une protection excessive bloquant l'accès en amont à des données nécessaires pour l'innovation, soit de n'accorder qu'une protection sous-optimale entravant la création suffisante de nouvelles bases de données. Face à ce dilemme, le législateur européen s'est décidé

224. For proposals to this effect, *see* Reichman & Uhlir (2002), *supra* note 33.
225. See generally id.
226. *See, e.g.*,Lessig, Future of Ideas, *supra* note 170; Boyle (2002), *supra* note 170; *see also* Lessig, *supra* note 215.
227. For details, *see* Reichman & Uhlir (2002), *supra* note 33.
228. *See* Conference on the Public Domain, Duke University, November 9-11, 2001, papers available at <http://www.law.duke.edu/pd.

à introduire un droit exclusif de nature sui generis protégeant les bases de données, lesquelles, tout en demandant un investissement quantitatif ou qualitatif substantiel, ne remplissent pas le critère d'originalité du droit d'auteur. Par contre, le législateur américain hésite toujours entre des propositions de loi de protection maximaliste ou minimaliste. Après avoir expliqué le dilemme fondamental, le rapport analyse les différences entre la solution européenne et les propositions américaines en les plaçant dans leur contexte économique et politique. Un problème majeur du choix législatif est l'absence de théories économiques qui soient suffisamment fondées empiriquement pour permettre de trancher le conflit en connaissance de cause. Toutefois, ceci n'a pas empêché le législateur européen de légiférer sans grand débat public alors qu'outre-Atlantique une grande transparence du processus législatif a permis de porter le débat à un niveau considérable sans pour autant faciliter le choix. Le rapport examine les données susceptibles d'éclairer ce choix en faisant une comparaison détaillée des diverses solutions et une critique des critères de protection retenus ou proposés – tels les critères d'investissement, la durée excessive ou non de la protection, les exceptions multiples mais limitées à la protection, etc. En outre, le rapport discute, à partir de la théorie de l'analyse économique du droit, de l'alternative existant entre un système de protection par droits exclusifs – approche de la propriété intellectuelle ou « property approach » – et un système de protection par simple compensation – approche de la responsabilité pour concurrence déloyale ou « liability approach ». Le rapport conclut que, dans l'état actuel des connaissances de l'opération et des effets économiques d'un système quelconque de protection, la prudence s'impose, et préconise donc le choix d'une solution minimaliste. Il défend également cette solution pour des raisons de principe. Parmi celles-ci figurent notamment des considérations tenant au système international de protection des bases de données. L'établissement d'un tel système est indispensable vu l'ubiquité des biens informationnels, telles les bases de données, et vu la nature, essentiellement globale, de leur exploitation. Cependant, une protection internationale présuppose un effort global d'harmonisation puisque l'accord ADPIC ne couvre que la protection des bases de données par le droit d'auteur. Étant donné l'incertitude quant à la forme adéquate de protection des bases de données, incertitude qui découle de la nouveauté de celles-ci et de la méconnaissance de leur potentiel économique, il serait hasardeux d'établir ou, pire, d'imposer, par voie d'harmonisation, une protection absolue. En effet, si les risques macroéconomiques d'une telle protection se réalisaient, ils seraient de nature globale et heurteraient tous les pays – à des degés différents suivant la situation économique de ceux-ci. C'est pourquoi le rapport préconise un accord cadre d'harmonisation qui combinerait une protection minimaliste avec la faculté pour les États d'expérimenter des formes de protection plus étendue et plus conforme à leurs intérêts économiques. Bref, la mondialisation de l'exploitation et de la protection des bases de données demande non pas une harmonisation totale, mais une diversité de modes de protection à partir d'une protection minimum assurant une concurrence loyale sur le plan mondial.

H. U.