A NEW OUTLOOK ON THE ECONOMIC DIMENSION OF THE DATABASE PROTECTION DEBATE

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"The dogmas of the quiet past are inadequate to the stormy present"

Abraham Lincoln[1]

ABSTRACT

This article addresses the contention that if the law does not protect database producers, these producers will not have an incentive to continue to create these works and, in turn, a market failure in the database industry will occur. The article begins with an overview of the main economic dilemma of incentives to create versus dissemination and use of raw data. Next, it examines the conflicting empirical evidence to date, some of which suggests that there is a problem requiring remedy and some of which suggests the opposite, arguing that such evidence is inconclusive in resolving the dilemma. The article then examines whether additional intellectual property protection is needed, even if market failure exists. It advances the argument that there are many existing, yet overlooked measures that make such protection redundant. First, it points to the

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[1] *Annual Message to Congress* (Dec. 1, 1862), *in* 5 COLLECTED WORKS OF ABRAHAM LINCOLN 518, 537 (Roy P. Basler ed., 1953), *available at* http://www.hti.umich.edu/l/lincoln/.

de facto "protectability" of databases. Second, it discusses available private market and technological mechanisms. Finally, it examines and provides an updated overview of and some new insights into various legal mechanisms that provide additional protection to databases. The article concludes that the protection of databases is best done by advancements in technology, and any legally-created protection will only protect the financial interests of certain members of the industry for a limited time.

I.   BACKGROUND

The 1990s brought significant developments in the fields of computers, telecommunications, and information technology. These, in turn, stimulated the creation of a new global market for electronic information services and products, a market that is occupied substantially by electronic databases. The emergence of these new technological developments and the global information market challenged many traditional branches of the law, including intellectual property law. A particularly prominent part of this debate is how the law should address the protection of electronic databases.

The debate over database protection in the United States can be traced back to the Supreme Court's seminal decision in *Feist Publications, Inc. v. Rural Telephone Service*.[2] In *Feist*, the Court found white pages telephone directories to be non-copyrightable.[3] The Court held that the touchstone for copyright protection is creative originality, and this requirement is constitutionally mandated.[4] The Court's decision also clarified that its holding

> inevitably means that the copyright in a factual compilation is thin. Notwithstanding a valid copyright, a subsequent compiler remains free to use the facts contained in another's publication to aid in preparing a competing work, so long as the competing work does not feature the same selection and arrangement.[5]

Feist thus ended the tradition in some courts of providing copyright protection based on the labor invested in creating the work. In other words, *Feist* declared the death of the "sweat of the brow" and "industrious collection" doctrines.

The debate gained additional prominence due to a number of worldwide initiatives that extended protection to databases and considered the provision of a much more extensive legal protection for databases. Notably, the *Agreement*

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[2]   Feist Publ'ns Inc. v. Rural Tel. Serv. Co., 499 U.S. 340 (1991).

[3]   *Id.* at 363–64.

[4]   *Id.*

[5]   *Id.* at 349.

on Trade Related Aspects of Intellectual Property Rights (the TRIPs Agreement)[6] introduced minimum standards regarding copyright protection for databases, and discussion in the World Intellectual Property Organization (WIPO) considered the provision of significantly broader intellectual property rights in databases than in the United States under *Feist*.[7] Furthermore, the European Union's Directive on the Legal Protection for Databases (Database Directive), adopted in 1996, constituted the most comprehensive attempt to provide protection to databases, granting a 15-year, renewable, *sui generis* right to prevent the extraction and utilization of raw data in a database, thus providing *de facto* protection of the raw data itself.[8] When compared to these much more liberal protective measures, the Supreme Court's decision in *Feist* arguably created a marked gap between European and American law in how they protect databases and their contents.

The adoption of the Database Directive, especially its reciprocity provision that conditions protection of non-EU databases upon reciprocal provision of comparable protection in non-EU jurisdictions, has therefore sparked an ongoing debate over a few bills drafted in the U.S. Congress to address legal protection of databases. The nature of these bills has changed over the years, but the two main models that have been proposed are: (1) a law granting an exclusive property right or (2) some form of unfair competition law focusing on the nature of the conduct prohibited.[9] These two legislative models reflected the

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[6]   Agreement On Trade Related Aspects Of Intellectual Property Rights, Apr. 15, 1994, Marrakesh Agreement Establishing the World Trade Organization [hereinafter WTO Agreement], Annex 1C, Legal Instruments—Results of the Uruguay Round, 33 I.L.M. 81 (1994) [hereinafter TRIPs Agreement].

[7]   World Intellectual Property Organization, *Basic Proposal for the Substantive Provisions of the Treaty on Intellectual Property in respect of Databases*, WIPO Doc. CRNR/DC/6 (Aug. 30, 1996) [hereinafter WIPO].

[8]   Directive 96/9/EC of the European Parliament and of the Council of the European Union of 11 March 1996 on the legal protection of databases, art. 9, 1996 O.J. (L 77) 20 (EC) [hereinafter The Database Directive].

[9]   The current U.S. bill for database protection is Database and Collections of Information Misappropriation Act of 2003, H.R. 3261, 108th Cong. (2003) (passed by House Judiciary Comm., Jan. 21, 2004). This bill adopts a pure misappropriation approach, modeled almost literally after the court's test formulated in Nat'l Basketball Ass'n v. Motorola, Inc., 105 F.3d 841 (2d Cir. 1997). *See* discussion *infra* Part V.C.2.(f). Former database protection bills are: Database Investment and Intellectual Property Antipiracy Act of 1996, H.R. 3531, 104th Cong. (1996) (The professed goal of the bill was to prevent actual or threatened competitive injury by misappropriating a database or its contents and it proposed a 25-year term of protection. The bill was met with ample criticism and finally failed mainly because it contained inadequate public interests and exceptions or privileges, and because the drafters of the bill did not consult with the relevant scientific and educational communities); Collections of In-

shift in the debate from an extreme, over-protective view to a softer, more balanced one. The shift resulted from a fruitful open debate that allowed all interested parties, i.e., producers, users, and the public at large, to sound their very different voices. This does not mean, however, that the later softer and more balanced view should be adopted.

Proponents of database protection, who represent only *part* of the database industry,[10] argue that the Supreme Court's decision in *Feist* and its problematic progeny, which hold most databases protectable, while hardly ever finding them infringed, created a gap in protection that has had a negative impact on the industry. This gap has been deepened by the European Union (EU) 1996 passage of the Database Directive. Additionally, these proponents argue that existing forms of protection are insufficient. Thus, they contend that Congress should intervene to prevent the occurrence of additional damage. Conversely, opponents believe that existing laws are adequate to protect the interests of the database industry and that there is no evidence to support the proponents' arguments.

Despite its argument that the *Feist* decision created a gap in legal protection, the database industry did not lobby or articulate any specific response in the years that followed. It was only when the ongoing discussions in the EU appeared to be leaning towards adoption of the Database Directive that a debate over the question of database protection even began.[11]

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formation Antipiracy Act, H.R. 2652, 105th Cong. (1997) (Although the legislation was styled as a misappropriation bill based on a tort rather than an intellectual property right theory, the substantive tests were almost identical to those of H.R. 3531. This bill received support from a limited number of large database publishers, but was eventually dropped due to concerns that arose by some government agencies); Consumer and Investor Access to Information Act of 1999, H.R. 1858, 106th Cong. (1999) (designed to provide protection only against unauthorized commercial uses that were "in competition" with the protected database and would have protected only against duplication of another's database. The bill contained exceptions for news reporting use and for scientific, educational, and research uses, but did not contain a general exception for unauthorized "fair uses" and a limited term of protection. The lack of these last two ingredients might have made this bill more vulnerable than H.R. 354 to a facial First Amendment challenge); Collections of Information Antipiracy Act, H.R. 354, 106th Cong. (1999) (designed broadly to protect investment in databases against unauthorized uses that cause material harm. It prohibited the unauthorized use of "all or a substantial part" of a protected database. The bill contained exceptions for news reporting use and for scientific, educational, and research uses. It also contained general exception for fair use and a limited term of protection).

10   *See* discussion *infra* Part III.

11   *See* discussion *supra* note 9 regarding considerations of the subject in Congress. It was not until 1996 that the first database protection bill was introduced in Congress.

II.   INTRODUCTION

This article addresses the arguments raised by the proponents and opponents of database protection. It begins with an overview of the main economic dilemma of incentives to create databases versus the dissemination and use of raw data. While the discussion does not question the categorization of databases as public goods, it does address whether databases are exposed to the typical risk of market failure as part of a network economy. The article then examines the current empirical evidence suggesting whether or not there is a problem concerning database protection that needs to be remedied, arguing that such evidence is currently inconclusive in resolving the dilemma.

The article then examines whether additional intellectual property protection is needed even if a market failure does exist. It advances the argument that there are many existing yet overlooked measures that make such protection redundant. First, the article points to the *de facto* "protectability" of databases. Second, it discusses the availability of private market and technological mechanisms finding that, for reasons related to the special characteristics of markets for information goods, raw data is merely one input in database producers' final product. Much of the value of databases in fact lies in the value added to the raw data. Therefore, a market failure argument based on the theory of public goods is not especially applicable here, and it is at best a weak defense.

Finally, the article provides an overview of some recent insights into various legal mechanisms that legal scholars have suggested for the protection of databases. The discussion of these existing forms of protection reveals that databases enjoy significant complementary forms of protection. Prominent among them are indirect forms of protection, such as computer crime and privacy laws, as well as direct forms of protection, including legal protection for technological measures, trade secrecy, trademark law, contracts, the misappropriation doctrine, and tort law. The discussion of these different available mechanisms finds that databases probably enjoy more protection than one might imagine. The combination of these different components provides sufficient protection to database producers such that there are adequate incentives to produce a suitably wide variety of databases.

The article concludes that the protection of databases is best done by advancements in technology, and any legally-created protection will only protect the financial interests of certain members of the industry for a limited time.

III.   OVERVIEW OF THE MAIN ECONOMIC DILEMMA—INCENTIVES VS.
        DISSEMINATION

The rationale for protecting database's commercial value is summarized in the Database Directive:

> [T]he making of databases requires the investment of considerable human, technical and financial resources while such databases can be copied or accessed at a fraction of the cost needed to design them independently. [12]

The economic analysis of information-based markets[13] indicates that incentives for database makers are necessary to secure database production and availability.[14] This school of thought claims that information itself is a commodity that should be considered a "public good," which results in certain effects. Technically, the "public good" aspect of intangible creations can be seen as one cause of market failure in the sense of less than Pareto efficiency.[15]

A so-called public good has two very closely related characteristics: (1) non-rivalry, which means that consumption by one person does not leave less for any other consumer; and (2) non-excludability, which is the high costs of excluding non-paying beneficiaries who consume the good, such that no private profit-maximizing firm is ultimately willing to supply it.

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[12]   The Database Directive, *supra* note 8, at ¶ (7).

[13]   ROBERT COOTER & THOMAS ULEN, LAW AND ECONOMICS 126–28 (4th ed. 2004); *see also* Jack Hirschleifer, *The Private and Social Value of Information and the Reward to Innovative Activity*, 61 AM. ECON. REV. 561 (1971).

[14]   The Database Directive asserts that "investment in modern information storage and processing systems will not take place within the Community unless a stable and uniform legal protection regime is introduced for the protection of the rights of makers of databases." The Database Directive, *supra* note 8, at ¶ (12).

[15]   *See*, *e.g.*, COOTER & ULEN, *supra* note 13, at 40–43. In regard to intellectual creations, Professor Wendy Gordon identifies both an initial condition of market failure stemming from appropriability (and its consequent free-rider problem) and a subsequent condition due to the inabilities of users or other second comers to form markets once creators obtain incentives to overcome the free-rider problem. *See*, *e.g.*, Wendy J. Gordon, *Asymmetric Market Failure and Prisoner's Dilemma in Intellectual Property*, 17 U. DAYTON L. REV. 853, 854–59 (1992) (discussing conditions for market failure); *see also* Wendy J. Gordon, *On Owning Information: Intellectual Property and the Restitutionary Impulse*, 78 VA. L. REV. 149, 223–24, 230–38 (1992).

Information, or knowledge, meets these two conditions.[16] As a result, the production of knowledge and information may be insufficient due to the relative ease and low costs of using, as compared to producing, knowledge. This conclusion results in the phenomenon of "free riding." In the absence of some form of intellectual property protection then, the producer is not only unable to cover his production costs, but is also typically unable to charge for the benefits that the product confers on other producers whose knowledge production builds on his.[17]

The economics theory of public goods appears to be directly applicable to the production of factual compilations and databases because both often have characteristics of public goods. First, compilations exhibit non-rivalrous consumption—that is, potentially any number of people can read or otherwise use facts without impairing their use by others. Second, compilations also show a degree of non-excludability, since it is arguably difficult to prevent those who do not pay compilers from using factual compilations. Easy access to various copying devices allows free riders to cheaply copy or otherwise reproduce compilations.

In his seminal work, Professor Jerome Reichman elaborated upon this public goods analysis, characterizing databases as products that bear their know-how on their face. In other words, the end products themselves embody the information in a manner that enables the immediate and direct extraction and utilization of the underlying information. Thus, they do not enjoy meaningful natural lead-time and are exposed to "free riding."[18] Reichman argues that data-

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[16] COOTER & ULEN, *supra* note 13, at 42–43. *See also* Ejan Mackaay, *Economic Incentives in Markets for Information and Innovation*, 13 HARV. J.L. & PUB. POL'Y 867, 880 (1990) (suggesting another characteristic of "public good" termed as "non-rivalry," which means that one person's consumption does not reduce the quantity of the good available for consumption by others).

[17] *See* Bronwyn H. Hall, *On Copyright and Patent Protection for Software and Databases: A Tale of Two Worlds*, *in* ECONOMICS, LAW, AND INTELLECTUAL PROPERTY 259, 260 (Ove Granstrand ed., 2003) (arguing that a useful distinction between the necessary incentives for the production of pure information goods (which require little complementary investment to make them useful) and industrial innovations (which require a great deal) might lead to a lesser need for intellectual property protection in the former case). In fact, this analysis is applicable to all forms of intellectual property rights. *See* Stanley M. Besen & Leo J. Raskind, *An Introduction to the Law and Economics of Intellectual Property*, 5 J. ECON. PERSPEC. 3, 25 (1991) (emphasizing that the increased interest in the economics of intellectual property is timely since the pace of technological change during the last few decades had forced intellectual property law into unknown areas and difficult cases, straining the capabilities of courts and legislatures).

[18] Jerome H. Reichman, *Legal Hybrids Between the Patent and Copyright Paradigms*, 94 COLUM. L. REV. 2432, 2511–20 (1994). *See also* Alfred C. Yen, *The Legacy of* Feist*: Conse-*

bases would be developed and made available in the marketplace only if there were a legal guarantee that the resources invested to create the database could be recouped through commercial exploitation in the form of income derived from their sale or use.[19] In the absence of such legal protection, the database producer faces strong competition from "free riders," who benefit from lower required investment for the creation of databases. Thus, there is no incentive to be the creator of a database. On the contrary, there is actually an incentive to wait for others to incur the risks of investment needed to make the database and then free ride on the investment. Consequently, fewer databases than are socially optimal would be produced, and society at large would suffer from the lack of these valuable tools for industry, commerce, and education. Therefore, Reichman concluded that legal protection that secures the investment in compiling databases is desirable and necessary.[20]

There is little controversy in legal scholarship regarding the validity of the above analysis as it pertains to informational works in general and to databases in particular. However, the incentive-to-create rationale must be regarded in the proper context, which means that further investigation is required regarding the "inevitable" application of the public goods analysis, the ability of competitors to free ride on a firm's initial investment, and the possibly devastating economic results to database production.

There is obviously another side to the incentive-to-create rationale. According to this view, information forms the building block of knowledge[21] and is

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quences of the Weak Connection Between Copyright and the Economics of Public Goods, 52 OHIO ST. L.J. 1343, 1364–75 (1991) (arguing that the public goods nature of factual compilations suggests that their free market supply will often fall short of the ideal and that copyright is clearly one of the tools that could be used to combat this problem by eliminating the benefits of free riding).

[19]   *See* Reichman, *supra* note 18, at 2520. Professor Reichman introduces a quasi-liability regime of rules that operate as a "portable" trade secret law, serving as a substitute liability regime that rationalizes the functions that trade secret law performed under optimal conditions and provides a solution to the problem of market failure. This regime would provide an artificial lead-time that would prevent the alleged market failure and would ensure that second comers who appropriate know-how for their own uses contribute directly or indirectly to the overall costs of R & D. *Id.* at 2533–56. *See also* the seminal paper: Jerome H. Reichman & Pamela Samuelson, *Intellectual Property Rights In Data?*, 50 VAND. L. REV. 51 (1997). The authors accept the argument that electronic databases are vulnerable to free riding due to the destabilizing trends in the information age and, as such, might result in market failure. They suggest a "modest solution"—a modified liability approach—as opposed to a more "ambitious" one. Such a solution is similar to Professor Reichman's quasi-liability regime discussed above. *Id.* at 145–51.

[20]   *See* Reichman & Samuelson, *supra* note 19, at 145–51.

[21]   *See* discussion *supra* Part III.

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a cardinal element in securing competition in a free market economy.[22] As a spokesman for several large scientific organizations explained before Congress:

> Data are the building blocks of knowledge and the seeds of discovery. They challenge us to develop new concepts, theories, and models to make sense of the patterns we see in them. They provide the quantitative basis for testing and confirming theories and for translating new discoveries into useful applications for the benefit of society. They also are the foundation of sensible public policy in our democracy. The assembled record of scientific data and resulting information is both a history of events in the natural world and a record of human accomplishment.[23]

This statement suggests that any form of protection adopted must be accompanied by appropriate safeguards. The Intellectual Property Clause of the U.S. Constitution outlines the objectives of intellectual property: "To promote the Progress of Science and useful Arts, by securing for limited Times to Authors and Inventors the exclusive Right to their respective Writings and Discoveries."[24] This provision implicitly reflects a fundamental idea in intellectual property law—namely, the need to strike a delicate balance between the interests of producers and the interests of users. The starting point for database protection, therefore, should be loyalty to the values underlying this provision. Database protection should be provided only if it responds to some need and must be balanced in a manner that guarantees the rights of both producers and users.

It has been argued that there is a clear connection between the extent and degree of database protection and the extent to which databases are available in a particular market.[25] This argument is based on the incentive-to-create

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[22] *See* ANSELM KAMPERMAN SANDERS, UNFAIR COMPETITION LAW: THE PROTECTION OF INTELLECTUAL AND INDUSTRIAL CREATIVITY 100 (Clarendon Press 1997) ("Competition is essentially a process of the formation of opinion: by spreading information . . . [i]t creates the views people have about what is best and cheapest" (quoting Friedrick A. Hayek, *Economics and Knowledge*, *in* INDIVIDUALISM AND ECONOMIC ORDER 106 (University of Chicago Press 1948))).

[23] *Collections of Information Antipiracy Act: Hearing on H.R. 354 Before the Subcomm. on Courts and Intellectual Prop. of the House Comm. on the Judiciary*, 106th Cong. 195 (1999) [hereinafter *The 1999 CIAA Hearing*] (statement of Joshua Lederberg, Nobel laureate, on behalf of NAS, NAE, IOM, and the American Ass'n for the Advancement of Science).

[24] U.S. CONST. art. I, § 8, cl. 8. *See also* TRIPs Agreement, *supra* note 6, at art. 7 ("The protection and enforcement of intellectual property rights should contribute to the promotion of technological innovation and to the transfer and dissemination of technology, to the mutual advantage of producers and users of technological knowledge and in a manner conducive to social and economic welfare, and to a balance of rights and obligations.").

[25] *E.g.*, *e*, 1993 O.J. (C 19) 3–6. This argument also suggests that the strength of the United Kingdom database industry is linked to the higher level of protection provided in the UK. However, the Intellectual Property Committee, British Computer Society, concluded:

rationale. It contends that the stronger the protection, the greater the likelihood potential investors would seek to invest in database production rather than in the production of other goods. In other words, there is a direct correlation between the strength of protection and the availability of databases in the market.[26]

Whether intellectual property provides incentives for creation, and if it is required in general, has been discussed extensively and will not be discussed here as it goes beyond the scope of this work.[27] The application of the incentive-

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"[a]lthough the Committee does not suggest that this situation is a direct consequence of the strong protection already available, it does reinforce the importance of not weakening such protection as there is at present." *See Comments on the EC Proposal for a Council Directive on the Legal Protection of Databases*, 9 CLSR 4 (1993).

[26] *See Collections of Information Antipiracy Act; Vessel Hull Design Protection Act: Hearing on H.R. 2652 and H.R 2696 Before the Subcomm. on Courts and Intellectual Prop. of the House Comm. on the Judiciary*, 105th Cong. (1997) [hereinafter *The 1997 CIAA Hearing*] (statement of Laura D'Andrea Tyson & Edward F. Sherry, paid consultants for the Info. Indus. Ass'n); Laura D'Andrea Tyson & Edward F. Sherry, Statutory Protection for Databases: Economic and Public Policy Issues (undated) (unpublished manuscript, on file with the author) [hereinafter collectively Tyson & Sherry] (arguing that database protection regime will result in creation and availability of more databases). *But see* Stephen M. Maurer & Suzanne Scotchmer, *Database Protection: Is it Broken and Should We Fix it?*, 284 SCI. 1129 (1999) (arguing that Congress's best option is to pass no legislation at this time since the costs of such legislation outweigh its benefits); John M. Conley et al., *Database Protection in a Digital World*, 6 RICH. J.L. & TECH. 2 (1999) (provide data regarding investment in information technology during the 1980s and 1990s that clearly shows that digital property generated astonishing wealth); Martha E. Williams, *The State of Database Today: 1998*, *in* GALE DIRECTORY OF DATABASES xviii, xix (Erin E. Braun ed., 1998) (shows that between 1991 and 1997 the number of databases increased by 35 percent, from 7,637 databases to 10,338, and the number of files in these databases has increased from 4 billion to 11.2 billion, a 280 percent increase).

[27] In the field of copyright law, a number of scholars asserted that authors have a variety of incentives to write besides royalties, and that adequate royalties can, in any event, be obtained—with publishers quite willing to publish—by virtue of the "headstart" (accompanied by the prestige and by some degree of economic leverage) that comes from a publisher's being first to print and distribute a book. *See*, *e.g.*, Arnold Plant, *The Economic Aspects of Copyright in Books*, 1 ECONOMICA 167 (1934); Robert M. Hurt & Robert M. Schuchman, *The Economic Rationale of Copyright*, 56 AM. REV. PAPERS & PROC. 421, 426 (1966) (acknowledge that "some works with high costs of creation, as well as literary creation induced by the expectation of incremental income from subsidiary and reprint rights" might not be produced without "some device to assist authors in receiving compensation for their services," but they suggest that this might be done more aptly and timely, i.e., during the period of creative production, "through private patronage by tax-exempt foundations, universities, and the like, or even by government support for desired literary creation"); Stephen Breyer, *The Uneasy Case for Copyright: A Study of Copyright in Books, Photocopies, and Computer Programs*, 84 HARV. L. REV. 281 (1970) (argued that, "copyright . . . is not the only way to resolve . . . the conflict between . . . revenues high enough to secure adequate production

to-create justification to databases is suspect. It ignores the way new databases are actually created in the "real world." Databases are produced in part by building upon preexisting materials contained, *inter alia*, in other databases. Granting property-like protection or other strong proprietary rights to the first database producer might mean that any successive database producer would be required to resort to licensing the original database, or if licensing is impossible, to start from scratch. Of course, many other works that are protected, for example by copyright law, are produced in part by building upon preexisting material contained in other works. However, there seems to be a difference of degree between the dependence on preexisting materials in the creation of databases versus other works. Therefore, if there is a need for protection, incentives must be tailored to guarantee that database producers are not provided with excessive power over raw data that could discourage the creation of new databases. The objective of any database regime should be to formulate a model that provides an optimal level of protection while securing the availability of databases for the benefit of both producers and users.

Furthermore, database protection regimes need to guarantee that the indispensable underlying materials of a database—the raw data—remain in the public domain, and unappropriated by anyone. These regimes need to reflect the understanding that such materials are important resources in the creation of future databases. As one commentator stated:

> To say that every new work is in some sense based on the works that preceded it is such a truism that it has long been a clich[é], invoked but not examined. But the very act of authorship in *any* medium is more akin to translation and recombination than it is to creating Aphrodite from the foam of the sea.[28]

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and . . . prices low enough not to interfere with widespread dissemination." *Id.* at 282. After examining some data and patterns in book publishing and speculating on alternatives to copyright, he concluded that "the case for copyright in books rests not upon proven need, but rather upon uncertainty as to what would happen if protection were removed." *Id.* at 322.). The literature exploring the economic underpinnings of copyright—and of a wide array of copyright doctrines—markedly proliferated in the past 25 years. *See, e.g.*, *Symposium on the Law and Economics of Intellectual Property*, 78 VA. L. REV. 1–419 (1992); Julie H. Cohen, *Lochner in Cyberspace: The New Economic Orthodoxy of "Rights Management,"* 97 MICH. L. REV. 462 (1998).

28 Jessica Litman, *The Public Domain*, 39 EMORY L.J. 965, 966 (1990). *See also Collections of Information Antipiracy Act; Trade Dress Protection Act; and Continued Oversight of Internet Domain Name Protection: Hearing on H.R. 2652 and H.R 3163 Before the Subcomm. on Courts and Intellectual Prop. of the House Comm. on the Judiciary*, 105th Cong. 182 (1998) [hereinafter *The 1998 CIAA Hearing*] (statement of Tim D. Casey on behalf of the Information Technology Association of America (ITAA)) ("To a great degree, the value of technology is cumulative. We cannot make progress without building freely on the data and results

In this sense, there is a positive correlation between the breadth of the public domain and the availability of databases. Since databases are generally built upon pre-existing materials or factual materials that have traditionally resided in the public domain,[29] there is a danger that granting rights in raw data will become a grant of a monopoly in materials that would otherwise be in the public domain. Thus, because databases are derivative creations, taking from existing materials is significant.

Some argue that database producers who wish to build upon existing works could simply license the existing works.[30] As discussed above, providing rights in data entails the risk of preventing access to such materials, resulting in the removal of these materials from the public domain. The result of "correcting" the alleged market failure in the database industry by protecting such indispensable materials is that the correction might prevent access to these materials. Giving monopoly rights in the underlying material might, in turn, result in the creation of another market failure.[31] As shown below,[32] some data will be unique, for example, sole source databases, whereas some data will have easy substitutes, for example, Lexis versus Westlaw. When the data is unique, grant-

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of the past."); Jessica Litman, *After* Feist, 17 U. DAYTON L. REV. 607, 613–14 (1992) ("Our society has long viewed facts as basic building blocks: building blocks of expression; of self-government; and of knowledge itself. Depriving the public . . . of the unfettered use of those building blocks could frustrate the growth of learning, impede the marketplace of ideas, and impoverish public discourse."); 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, 446 (1999) ("The position that information released into the body of human knowledge is 'free as the air for common use' is not an empty aphorism or a transient policy preference. It is a commitment expressed in the First Amendment speech and press clauses.") *See generally* 66 LAW & CONTEMP. PROBS. 1 (2003) (A major conference issue on many aspects of the public domain).

29   For instance, the Westlaw service is comprised of many databases in the public domain. For example, court decisions are considered government works that are not copyrightable subject matter. As such, Westlaw draws largely on materials that are not copyrightable.

30   The possibility to seek a license does not mean that the licensor will issue a license. *See The 1998 CIAA Hearing*, *supra* note 28, at 102 (statement of William Hammack, on behalf of the Association of Directory Publishers) ("Tom [Feist] was left with no choice but to copy listings in order to provide consumers a convenient, one-book directory covering eleven different service areas, because one of the [telephone companies] refused to license its listings to him.").

31   *See* Edmund W. Kitch, *Elementary and Persistent Errors in the Economic Analysis of Intellectual Property*, 53 VAND. L. REV. 1727, 1734 (2000) (suggesting that intellectual property rights do not necessarily create monopoly power).

32   *See* discussion *supra* Part IV.

ing property rights in the data itself will probably create a monopoly in the market for that data.

Indeed, some sectors of the information technology industry itself are disturbed by the prospect of *sui generis* protection for databases. They worry that a *sui generis* regime will heighten the dangers of an incipient monopoly and will result in increased business costs that will eventually drive the entire information industry offshore.[33] Internet-based companies also argue that *sui generis* protection will result in industry concentration that will increase the cost and diminish the utility of search engines, since companies will either have to maintain their own database of web pages or license them from competitors.[34] Technologically-oriented companies also predict rising costs associated with internet industries due to monopoly pricing.[35]

Some opponents argue that the effect of charging scientific and educational institutions high prices for access to data is equivalent, in most cases, to simply denying access to scientists and educators.[36] For example, in 1978 the Carter Administration proposed the privatization of Landsat, a series of remote sensing satellites. The impact on the scientific community was devastating. The price of Landsat images increased from approximately $400 per image to $4,400 per image. While this price was affordable for some commercial and

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[33]   *See The 1998 CIAA Hearing*, *supra* note 28, at 180–82 (statement of Tim D. Casey on behalf of the Info. Tech. Ass'n of America (ITAA)).

[34]   *See The 1998 CIAA Hearing*, *supra* note 28, at 167–68 (statement of Jonathan Band on behalf of the Online Banking Ass'n (OBA)).

[35]   *Id.*

[36]   *See The 1997 CIAA Hearing*, *supra* note 26 (statement of Professor Jerome H. Reichman, University of Michigan School of Law); Paul David, *The Economic Logic of "Open Science" and the Balance between Private Property Rights and the Public Domain in Scientific Data and Information: A Primer, in* THE ROLE OF SCIENTIFIC AND TECHNICAL DATA AND INFORMATION IN THE PUBLIC DOMAIN, PROCEEDINGS OF A SYMPOSIUM 19, 33 (Julie M. Esanu & Paul F. Uhlir eds., 2003) [hereinafter THE ROLE OF DATA] (arguing that "there is a danger in permitting those who are enthusiastic for more and stronger IPR to employ [the metaphor of 'property'] as [a] rhetorical device as a way of avoiding the burden of proof," and that "[t]hey should be asked to show that the moves already made in that direction have not been economically damaging, that further encroachments into the public domain of scientific data and information would not be still more harmful, and that society would not benefit by adopting a policy that was just the opposite of the one they support"). *But see* Tyson & Sherry, *supra* note 26 (arguing that the Landsat privatization failure resulted from the manner in which the privatization contract was written and interpreted, not from the privatization effort itself).

government customers, it was too costly for most academic and independent researchers.[37]

When others can reuse and reutilize public domain materials, however, the investment required to produce a particular database decreases, resulting in lower prices for using it. As more databases are produced this way, their availability in the marketplace is enhanced, particularly for such price sensitive users as educational and scientific institutions. Securing and enlarging the public domain is therefore directly linked to the amount of database production and consumption.

In summary, securing the public domain ensures the creation of value-added databases for relatively low investment, which in turn creates new markets for the benefit of both users and producers.

IV.   EMPIRICAL EVIDENCE

This section provides an overview and synthesis of empirical evidence regarding the database debate. First, it discusses the evidence used by proponents of database protection to suggest that there is an incentive problem in the database industry that needs to be remedied. Second, it discusses the evidence used by opponents of database protection to suggest that such a problem does not exist. Next, it synthesizes this evidence, revealing its inconclusiveness. Finally, in trying to learn from past experience with other legislative initiatives that employed a similar *sui generis* approach to remedying an arguable market failure, the discussion turns to the question concerning what evidence proponents of legislation should provide to convince Congress of the need for database protection.

There are a few preliminary unanswered questions regarding the database debate. First, what industries are covered by the title "database industry?" Several industries could fall under this heading, including the publishers of newspapers, books, and magazines, the data processing and network services, the business information suppliers, the electronic information industry, and the information retrieval services. As of yet, however, there has not been any consideration of the actual composition of the database industry.

Additionally, it is difficult to know what percentage of the U.S. database industry supports legislative action. Clearly, there is a split in the industry's support of database protection legislation.[38] The fact that each member of

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[37]   *See* NAT'L RESEARCH COUNCIL, BITS OF POWER: ISSUES IN GLOBAL ACCESS TO SCIENTIFIC DATA 121–24 (Nat'l Academy Press, 1997) [hereinafter BITS OF POWER].

[38]   *See* discussion *supra* Part III.

the database industry is both a potential producer and consumer of data may explain this split. Each firm likely makes the decision whether or not to support legislative action based on its location on the producer-borrower spectrum. It may be that producers located closer to the producer pole tend to support legislation to protect databases, whereas those closer to the borrower pole object to such legislation. Firms that are unable to predict what roles they will play in the future probably take into account the interests of both producers and borrowers to reach a neutral solution.[39]

Furthermore, it should be noted that, if strong legal protections are necessary to maintain adequate incentives to produce databases, one would expect that jurisdictions with strong protections would see increased database production and vice versa. It is unclear whether this is actually the case in the database industry.

The economic analysis discussed earlier is very appealing, and one might argue that there is no other plausible solution other than the provision of legal protection. Indeed, leading scholars in the area of database protection law, such as Professors Jerome Reichman, Pamela Samuelson,[40] and Professor Jane Ginsburg,[41] all appear to accept the public goods analysis and believe that the focus should be on crafting the right solution to the database protection problem. They suggest the adoption of legal regimes such as quasi-liability rules in the form of artificial lead-time and the adoption of a carefully tailored federal anti-copying statute that would incorporate some form of compulsory or voluntary collective licensing. Likewise, most of the legal scholarship is focused on the

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[39]   *See* Reichman, *supra* note 18, at 2547; *see also id.* at 2493 (citing Commission of the European Communities, Proposal for a Council Directive on the Legal Protection of Databases (COM (92) 24 final - SYN 393) 5874 (1992)) (showing that within the European Information Industry Association (EIIA), while database producers were eager for a strong protection in the database proposal, the information brokers division of the EIIA saw dangers to its own activities if such proposals were adopted).

[40]   Reichman & Samuelson, *supra* note 19, at 55 (noting that the risk of market failure tends to keep the production of information goods at sub-optimal level). *See also* PAUL GOLDSTEIN, COPYRIGHT'S HIGHWAYS: FROM GUTENBERG TO THE CELESTIAL JUKEBOX 197 (Stanford Univ. Press 1994) (arguing that in a market in which investment in new software technologies can run into millions of dollars, investment is unlikely to happen unless the investor can be assured a chance to recoup an investment); Reichman, *supra* note 18, at 2491 (noting that copyright's creativity requirement could "exclude many of the most commercially and scientifically important databases"). *But see* Reichman & Samuelson, *supra*, at 70–71 (noting that anecdotal evidence suggests that database markets are "almost universally characterized by a distinct absence of competition").

[41]   Jane C. Ginsburg, *No "Sweat"? Copyright and Other Protection of Works of Information after* Feist v. Rural Telephone, 92 COLUM. L. REV. 338 (1992).

question of which form of legal protection to adopt for the resolution of this complicated problem,[42] rather than on questioning the underlying assumptions of the economic justification for protection.

The focus of the debate, instead, should be the question of whether the database industry is actually facing or likely to face market failure. Until recently, however, economic data on this issue was practically non-existent.[43] In the summer of 2005, the European Union started the process of reassessing of

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[42] *See*, *e.g.*, suggestions that support the adoption of a new unfair competition statute, which is modeled after the misappropriation doctrine: L. Ray Patterson, *Copyright Overextended: A Preliminary Inquiry Into the Need for a Federal Statute of Unfair Competition*, 17 U. DAYTON L. REV. 385, 410 (1992) (suggesting that "a federal trade-regulation statute unburdened by the baggage of copyright history could be used to provide the minimal protection that sweat-of-the brow efforts merit," and emphasizing that his position is "neither that neo-copyright entrepreneurs are unworthy of legal protection for their industriousness nor that they do not serve a useful function"); Jacqueline Lipton, *Balancing Private Rights and Public Policies: Reconceptualizing Property in Databases*, 18 BERKELEY TECH. L.J. 773, 840 (2003) (suggesting a limited proprietary model that could be augmented by aspects of a tort/misappropriation model relating to the prevention of unfair competition or unjust enrichment that is applicable only to commercial databases); Michael J. Bastian, Note, *Protection of "Noncreative" Databases: Harmonization of United States, Foreign and International Law*, 22 B.C. INT'L & COMP. L. REV. 425, 427–28 (1999) (supporting a solution that is based on the misappropriation doctrine since it is more compatible with traditional notions of copyright and better protects public interest concerns); Jeffrey C. Wolken, Note, *Just the Facts, Ma'am. A Case for Uniform Federal Regulation of Information Databases in the New Information Age*, 48 SYRACUSE L. REV. 1263, 1297–1300 (1998) (arguing that both federal and state law are incapable of solving the database protection issue and outlining elements that are needed for a uniform federal regulatory scheme that prohibits the extraction of more than 95% of the raw data in a database and limits damages to only the market value of the information contained in the database). *But see* suggestion for solution via copyright law: Sarah Lum, Note, *Copyright Protection for Factual Compilations—Reviving the Misappropriation Doctrine*, 56 FORDHAM L. REV. 933, 935 (1988) (suggesting that courts adopt a standard of originality that requires examination of both labor and arrangement elements and that implicitly relies on the misappropriation rationale); Ethan R. York, Note, *Warren Publishing, Inc. v. Microdos Data Corp.: Continuing the Stable Uncertainty of Copyright in Factual Compilations*, 74 NOTRE DAME L. REV. 565, 588–90 (1999) (suggesting that the Supreme Court or Congress pronounce a low threshold and clear standards for the originality requirements for selection, coordination, or arrangement in factual compilations). *See also* suggestions for the creation of a *sui generis* right, which is modeled after the Database Directive: Jennett M. Hill, Note, *The State of Copyright Protection for Electronic Databases beyond ProCD v. Zeidenberg: Are Shrinkwrap Licenses a Viable Alternative for Database Protection?*, 31 IND. L. REV. 143, 178–80 (1998) (supporting the creation of a *sui generis* right since, without such protection, EC technology companies will be less likely to participate in the U.S. market while U.S. technology companies lose their viability in the global economy).

[43] *But see* Raymond Snoddy, *Reed Elsevier Shares Drop on U.S. Legal Ruling*, FIN. TIMES, May 23, 1997, at 24.

the Database Directive, and in December of 2005, finally issued a report that, as discussed in length below, conclusively shows that protection is needed.[44] Moreover, proponents of database protection are reluctant to provide information regarding piracy of their products and the extent of their economic losses because they do not wish to draw attention to particular databases that have thin protection or are non-copyrightable.[45]

The evidence that is used to suggest that there is a database protection problem is more speculative than factual. Proponents often fail to provide data regarding losses to piracy in the database industry. Instead, they constantly refer to and rely on court decisions in which database producers were ultimately denied protection. As the discussion below shows, however, such cases do not support the argument that a problem exists. At best, the evidence reflects that the plaintiffs in those cases failed to respond to changes in both economic and technological realities that required rethinking of their business models.

Additionally, the proponents argue that existing legal remedies are insufficient and that protection will bring about the production of more databases, following the line of reasoning of the incentive-to-create argument discussed earlier. For example, the corporations Reed-Elsevier and Thomson, the leading proponents of database protection, retained Professor Laura D'Andrea Tyson, former Director of the National Economic Council, to prepare an economic justification for additional statutory protection of databases.[46] Dr. Tyson's study

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[44]   Commission of the European Communities, *DG Internal Market and Services Working Paper, First Evaluatoin of Directive 96/9/EC on the Legal Protection of Databases* (Dec. 12, 2005) [hereinafter *Working Paper*].

[45]   *See*, *e.g.*, Email from Eric Massant, Director, Government & Industry Affairs, Reed-Elsevier, to author (Feb. 20, 2004) (on file with author) ("Aside from court actions, database publishers are very reluctant to publicize incidents of piracy, out of fear for further piracy in a legal environment where there is little protection."); *The 1999 CIAA Hearing*, *supra* note 23, at 286 (1999) (statement of Lynn Henderson, Doane Agricultural Services Co.) ("I hesitated to testify today because I realized that if he or others caught wind of this lack of protection, I could be advertising our vulnerability."). *But see Hearing on Violations of Intellectual Property Rights Before the House Subcomm. on Int'l Econ. Policy & Trade of the Comm. on Int'l Relations*, 105th Cong. (1999) (statement of Rep. Ileana Ros-Lehitnen, R-Illinois) ("The International Intellectual Property Alliance estimated that in 1998 losses [due to foreign database piracy] were about $5 billion for business[es].").

[46]   Tyson & Sherry, *supra* note 26. *But see* Stephen M. Maurer et al., *Europe's Database Experiment*, 294 SCI. 789–90 (2001) (showing how legal protection for databases in Europe did not have long-term effects); *Database and Collections of Information Misappropriation Act of 2003: Hearing on H.R. 3261 Before the Subcomm. on Courts, the Internet, and Intellectual Prop. of the House Comm. on the Judiciary and the Subcomm. on Commerce, Trade, and Consumer Prot. of the House Comm. on Energy and Commerce*, 108th Cong. 17 (2003) [hereinafter *The 2003 DCIMA Hearing*] (statement of Thomas J. Donohue, President and

argues that additional protection would bring about the creation of more databases.

The Tyson study does not deal with the possible implications of allowing private parties to control indispensable materials such as raw data. Despite its length, Dr. Tyson's study also does not adequately discuss statistics regarding the growth of the U.S. database industry. While her appendix does include some statistics, the study itself does not carefully analyze these numbers, probably because the data does not support her conclusion that the database industry needs additional protection. All her report does is mention briefly that "by any reasonable measure, [the database industry] is both large and growing rapidly."[47] Moreover, it emphasizes that "although both the number of databases and the number of database producers have continued to expand since the *Feist* decision in 1991, the growth rates for both of these measures slowed considerably in the six years following that decision compared to the prior six years," admitting that "*although not conclusive*, these growth numbers suggest that this decision may have dampened investment in the industry, as economic logic predict."[48] Finally, the data she cites was submitted on behalf of proponents of database legislation, further underscoring the bias in her report.

Proponents also rely on the EU Database Directive as an additional reason for database protection. They argue that the Directive's reciprocity provision places the U.S. database industry at an economic disadvantage with regard to the EU.[49] As yet, there is no empirical evidence that suggests that extra-

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CEO, U.S. Chamber of Commerce, representing "3 million business members of every size and every sector") ("[O]ur members have told us that this legislation is misdirected, in many ways, harmful and unnecessary.").

[47]   Tyson & Sherry, *supra* note 26.

[48]   *Id.* (emphasis added).

[49]   *See*, *e.g.*, *The 1998 CIAA Hearing*, *supra* note 28, at 393–94 (statement of Daniel C. Duncan, Vice President, Government Relations, Information Industry Association (IIA)). Duncan stated:

> Other nations are seeking to usurp the U.S. lead in database production as the thirst for information in all parts of the world grows and as technology makes it easier to deliver information across borders. Nowhere is this threat to the American database industry more evident than in Europe. . . . Without U.S. database legislation, there is no hope that American providers will receive any of the supplemental *sui generis* protection necessary if their products and services are stolen by European competitors and marketed against them-whether pirated copies appear in Europe, the United States or elsewhere in the world.

Id. See also The 1999 CIAA Hearing, *supra* note 23, at 169–70 (statement of Marilyn Winokur, Executive Vice President, Micromedex, Inc., on behalf of the Coalition Against Database Piracy (CADP)). Winokur stated:

copyright or *sui generis* protection for databases provided the EU with a competitive advantage in relation to its major competitors in the global market—namely the U.S. and Japan—or that it had significant effects on database production. In fact, the economic evidence regarding the impact of the Database Directive discussed below, is certainly inconclusive in this regard. It is also inconclusive with regard to the benefits to the EU database industry.

One major report that was prepared for the European Commission assessed the economic importance of copyright industries to the European economy and its individual nations in the year 2000.[50] The major relevant findings of the report are that, among "core" copyright industries,[51] the software and databases industries[52] and print media industries make the largest contribution to the European economy, with each contributing 1% of the EU gross domestic product.[53] These core activities do not stand alone, though. The software and databases sector, for example, is interdependent with computer equipment manufacturing in the copyright-dependent industries sector.[54] The average contribution of software and database industries to the GDP of the European nations was 1.35% in 2000. The highest relative production was in the United Kingdom followed by Sweden, France, The Netherlands, Italy, and Germany.[55] The United Kingdom clearly produces the highest contribution to GDP in all copy-

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> The need for prompt congressional action is also underscored by the recent adoption of a database protection directive by the European Union . . . . [U]nless the U.S. enacts a database protection law that the EU deems comparable to the terms of its Directive, U.S. database producers will be at a distinct commercial disadvantage in the EU and beyond.

> *Id.*

[50] MEDIA GROUP, BUS. RESEARCH AND DEV. CENTRE, TURKU SCHOOL OF ECON. AND BUS. ADMIN., FINLAND, THE CONTRIBUTION OF COPYRIGT AND RELATED RIGHTS TO THE EUROPEAN ECONOMY, BASED ON DATA FROM THE YEAR 2000, PREPARED FOR THE EUROPEAN COMMISSION, DIREDTORATE GENERAL—INTERNAL MARKET, FINAL REPORT (2003).

[51] "Core" copyright industries are defined as industries that involve the creation, production and, usually, distribution and consumption of copyright works and other subject matter. These industries are able to exist and produce economic contributions because of the protections afforded by legislation protecting their creative activities. *Id. at* 20.

[52] Software and database industries are defined as a category that includes a range of activities relating to the creation, maintenance, and sales of computer software of all kinds (programming, development and design, manufacturing; wholesale and retail repackaged software (business programs, video games, educational programs, etc.); database processing and publishing). *Id.* at 23.

[53] *Id.* at 2.

[54] *Id.* at 3.

[55] *Id.* at 4.

right industries, reflecting the cultural nature of these industries and the dominant international position of the English language.[56] These findings may suggest that the Database Directive served some role in the market growth attributable to databases. Another economic study found that new companies entering four database markets (France, U.K, Germany, and U.S.) showed a sharp, one-time growth spur in all three EU countries after the host governments implemented the Database Directive in 1998—growth that has not been noticed in the U.S. market.[57] The Database Directive, however, does not appear to have any real long-term effects.[58]

This finding suggests that the EU study, in examining one isolated year, does not provide an accurate picture of the long-term effects of the Directive. Moreover, there are some who noted that the present situation, with better protection of databases in Europe, did not result in a significant shift of the database industry to Europe despite the implementation of the Database Directive in the various Member States.[59]

Indeed, a recent EU report assessing the effects of the Database Directive is inconclusive in its findings, but it is suggestive with regard to the impact database protection had on database production. The EU began reviewing the Database Directive in the summer of 2005 to assess the impact it had on the database market. In December of 2005 the EU released the long awaited results of its study entitled: "DG Internal Market and Services Working Paper: First Evaluation of Directive 96/9/EC on the Legal Protection of Databases." ("Working Paper").[60] The report describes two sources relied upon in performing the assessment of the directive: an online survey of 500 database producers in Western Europe, which generated 101 responses, 65% of which came from private companies, most of which are based in the United Kingdom (30%), Italy, Germany, France and Belgium (46% together);[61] and information from the world's largest database directory, the Gale Directory of Databases ("GDD"), which contains statistics indicating the growth of the global database industry since the 1970s.[62]

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[56]   *Id.* at 6.

[57]   Maurer, *supra* note 46, at 789.

[58]   *Id.* at 789–90.

[59]   Symposium, *Panel I: Database Protection*, 11 FORDHAM INTELL. PROP. MEDIA & ENT. L.J. 275, 300 (2001) (comments made by Mr. Alain Strowel, Law Firm NautaDutilh, Brussels, Belgium).

[60]   *Working Paper*, *supra* note 44.

[61]   *Id.* at 5 n.5.

[62]   *Id.* at 5.

Not surprisingly, the results from the above-mentioned sources are not similar. The survey indicates great support within the database industry for the *sui generis* right whereas the empirical data shows that the *sui generis* right has had no significant economic impact on the production of databases.[63] The Working Paper summarizes the survey's results:

> [T]he European publishing and database industries claim that "sui generis" protection is crucial to the continued success of their activities. 75% of respondents to the Commission services' on-line survey are aware of the existence of the "sui generis" right; among these, 80% feel "protected" or "well protected" by such right. 90% believe that database protection at EU level, as opposed to national level, is important and 65% believe that today the legal protection of databases is higher than before harmonization.[64]

The survey respondents also believe that the *sui generis* right facilitated the marketing of databases, created more business opportunities, reduced the costs of protecting databases, and brought about legal certainty.[65]

While the GDD data were "the only empirical figures available at [that] stage to measure the evolution of the database markets[,] these figures [were] subject to considerable uncertainty."[66] The figures below, reprinted from the Working Paper, display the GDD data:
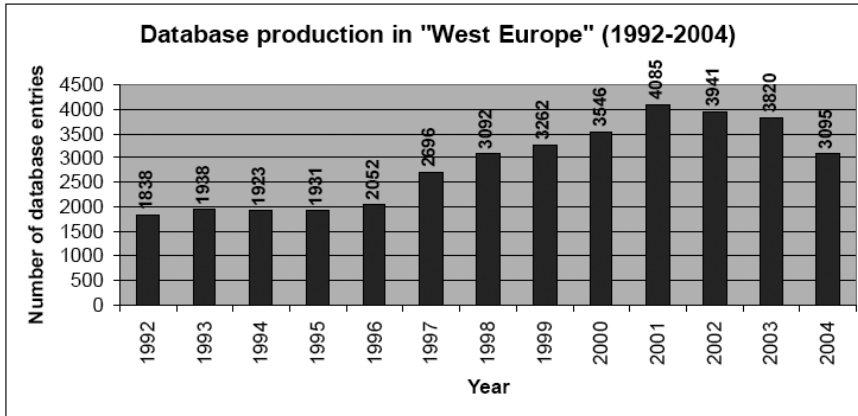
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[63]   *Id.* at 18–20, 22, and 25.

[64]   *Id.* at 20.

[65]   *Id.* at 25.

[66]   *Id*. at 19.

Figure 5 - Trend of the database sector in "West Europe" (1992-2004)

Database production in "West Europe" (1992-2004)

Source: The *Gale Directory of Databases* 2005, Vol. 1, Part 2.

Figure 5 reflects the number of "entries" into the GDD from "Western Europe."[67] The number of entries has been fairly stable during the period since the Directive was implemented into national laws in 1998.[68] As is shown in Figure 5, the number of Western European database "entries" was 3095 in 2004 as compared to 3092 in 1998.[69] With respect to the overall decline of database "entries" as of 2001, it was argued that database "entries" decreased due to a shift toward the online provision of information.[70] Additionally, it was also pointed out that database delivery has shifted from stand-alone database products, such as CD-ROMs and dedicated on-line access to specific databases, to "portal" based applications which enable a single point of access to many databases. It is alleged that such trends are not reflected in the GDD.[71] As the Working Paper states, "these figures are subject to considerable uncertainty."[72]

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[67] The GDD does not define the "Western Europe" market, but reports that the UK should be included in such market. Other EU countries' markets for which the GDD reports significant figures are Germany, France, the Netherlands, Finland, and Sweden. *See id.* at 18 n.36.
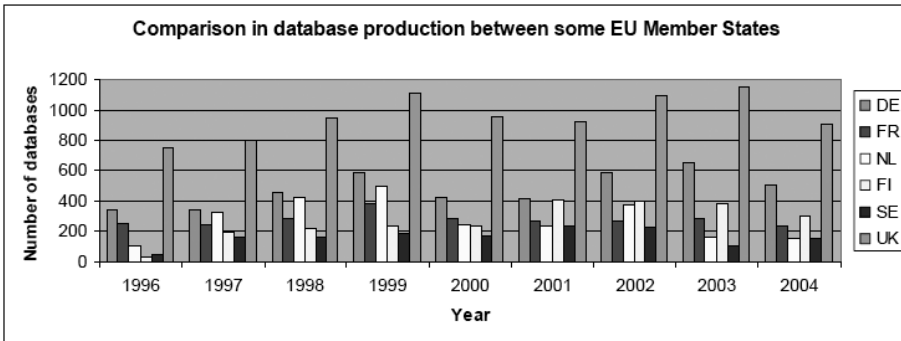
[68] *Id.* at 18.

[69] *Id.*

[70] *Id.* at 19.

[71] *Id.*

[72] *Id.*

Figure 6 - Comparison in database production between some EU Member States (1996-2004)

Comparison in database production between some EU Member States

Source: The Gale Directory of Databases (1997, 1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005 editions)

Figure 6 illustrates that in the UK, which endorsed the "sweat of the brow" doctrine pre-directive, database production has consistently increased through 2003, and it has remained the largest database producer in Europe.[73] It has been suggested that other reasons account for this long-time success such as relative maturity of the UK database industry and the success of databases that are produced in English.[74]

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[73]   *Id.* at 20.
[74]   *Id.*

Figure 7 - Database production in North America and West Europe (1992-2004)
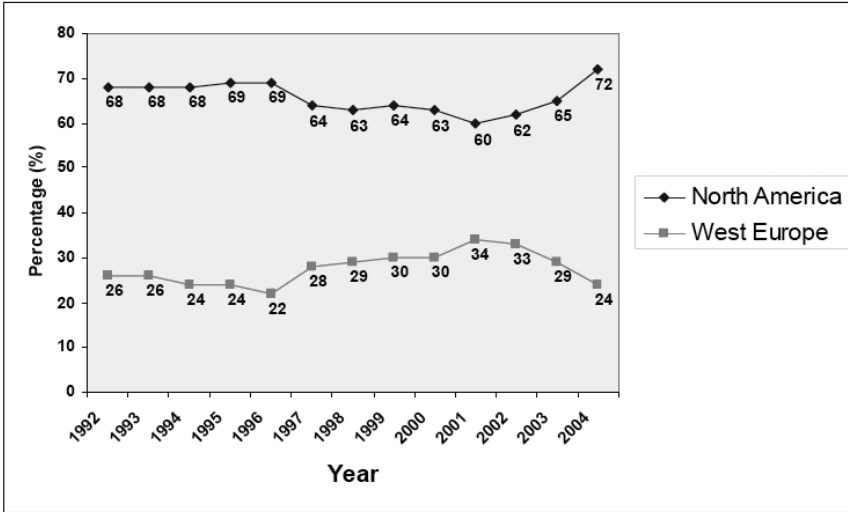
Source: The Gale Directory of Databases 2005, Vol. 1, Part 2.

Figure 7 provides comparative data concerning U.S. and EU database production. During the period of 1996–2001, Western Europe's share in global database production increased from 22% to 34%, while the North American share decreased from 69% to 60% during the same period.[75] Between 2002 and 2004, the European share decreased from 33% to 24%, while the U.S. share increased from 62% to 72%.[76] The ratio of European/US database production, which was nearly 1:2 in 1996, had dropped to 1:3 in 2004.[77]

In the absence of other empirical data, the evolution of database sales since the introduction of the Database Directive has to be measured by the number of databases produced. Statistics, as complied in the GDD, show the available data.[78] For the purposes of this directory, the size of the database industry is measured in terms of changes in the number of database "entries" into the directory.[79]

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[75]   *Id.* at 22.

[76]   *Id.*

[77]   *Id.*

[78]   *Id.* at 18.

[79]   For the purposes of the GDD a database "entry" represents a certain database regardless of the media on which it may be provided. Some entries represent a database on one or more

When the Working Paper was published, the EU also invited stakeholder submissions as an additional source of data for reassessment of the Directive. Overall, there were 55 contributors: eight users, 13 academic associations, and 31 database producers.[80] Most of the contributors did not wish to repeal the *sui generis* right, and they were evenly split as to whether to amend the Database Directive.[81] Not surprisingly, the submissions included letters from opponents of the *sui generis* right, such as the Consumer Project on Technology and an alliance of scientific and academic advocacy organizations. These letters criticized the Directive for its over-breadth and also attacked the survey discussed in the Working Paper for a lack of objectivity, due to its reliance upon data provided by the database industry.[82] The submissions, however, also included letters from supporters, such as the UK Newspaper Society and the Brussels-based International Federation of Reproductive Rights Organizations, who pointed out that the Working Paper's GDD data was inconclusive and had little probative value.

In summary, the Working Paper and the later submissions all provide data sources that are either subjective in nature (the survey results and the later stakeholders submissions) or merely inconclusive (the GDD data), and thus fail to measure and assess the impact of the Directive.

As for the operative side of the Working Paper, it first provides conclusions with regard to the Directive and then provides four policy options.[83] It concludes, based on European Court of Justice case law, that the *sui generis* right is difficult to understand and that the protection it provides is close to providing a property right in data.[84] Furthermore, based on the economic analysis discussed above, it concludes that the economic impact of the *sui generis* right is unproven.[85] The Working Paper then moves on to discuss four policy options: repealing the Directive, withdrawal of the *sui generis* right provisions, amending the *sui generis* provisions, and maintaining the status quo.[86] It is still unclear

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media such as CD-ROM, diskette, on-line, etc.; the number of individual databases can be larger than the number of entries. *See id.* at 5 n.6.

[80] *See* EUROPA, *Protection of Databases*, http://ec.europa.eu/internal_market/copyright/prot-databases/prot-databases_en.htm#20060427 (last visited Oct. 8, 2006).

[81] *Id.*

[82] *Id. See* Michelle Childs, Consumer Project on Technology, *CPTech Comments on DG Internal Market and Services Working Paper* ¶¶ 1.6–1.18 (Mar. 13, 2006).

[83] *Working Paper*, *supra* note 44, at 23–27.

[84] *Id.* at 23–24.

[85] *Id.* at 24–25.

[86] *Id.* at 25–27.

what course of action the EU will take. However, it seems unlikely that, given the unproven effect of the Directive, the EU will maintain the status quo.

In any event, while the data is inconclusive in nature, it seems to be in line with the other data discussed, i.e., more protection does not seem to necessarily result in more databases. It is also possible that the lack of growth stems from other factors yet to be identified, such as linguistic and technical barriers.

Finally, proponents argue that they suffer economic losses to piracy both in the U.S. and in the EU as a result of: (1) the lack of legal protection for databases and (2) the failure to meet the Database Directive's reciprocity requirement.[87] They fail to provide data, however, regarding the first assertion. This is likely because they do not wish to draw attention to particular databases without protection or that are non-copyrightable out of fear that their products would be exposed to piracy.[88] As for the second claim, there is current data regarding software piracy worldwide in 2003–2004[89] in which the EU is not listed as an offender. Yet, individual countries that are Member States of the EU are, in fact, on the watch list[90] and the special mention list.[91] This data reveals a very difficult picture regarding piracy in general and software piracy in particular. They do not provide information regarding the database sector, however, and as such, do not assist in reaching conclusions regarding piracy rates in this sector.

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[87] *See supra* note 48 and accompanying text. *See also The 2003 DCIMA Hearing*, *supra* note 46, at 11 (statement of David Carson, General Counsel, Copyright Office of the U.S., Library of Congress) ("[T]here was a gap in existing legal protection, which could not be satisfactorily filled through the use of technology alone. . . . Without legislation to fill the gap, publishers were likely to react to the lack of security by investing less in the production of databases. . . .")

[88] *See supra* note 44 and accompanying text.

[89] *See* IIPA "Special 301" *Recommendations*, *IIPA 2003–2004 Estimated Trade Losses Due to Copyright Piracy and 2003–2004 Estimated Levels of Copyright Piracy in Asia Pacific, Europe/Confederation of Independent States, the Americas and the Caribbean, and Middle East/Africa* (2005).

[90] *See* International Intellectual Property Alliance, *USTR "Special 301" Decisions on Intellectual Property* app. A (Feb. 9, 2005), *available at* http://www.ustr.gov (last visited Mar. 20, 2005) (the reported losses (in millions of U.S. dollars) and the level of copyright piracy (percentage of piracy regarding the use of the product in that specific country's market) in the business software sector regarding EU countries listed on the watch list for the year 2004 are: Hungary (56/42%), Italy (567/42%), Latvia (9/58%), Lithuania (11/58%), and Poland (175/58%)).

[91] *See id.* (the reported losses (in millions of U.S. dollars) and the level of copyright piracy (percentage of piracy regarding the use of the product in that specific country's market) in the business software sector regarding EU countries listed on the special mention list for the year 2004 are: Cyprus (5/56%), Czech Republic (58/39%), Estonia (9/57%), Greece (48/62%), and Spain (283/43%)).

In any event, the recent Working Paper in the EU suggests that there is a possibility that the Database Directive will be repealed, thereby exposing European databases to the same risks as their American counterparts.

Despite this evidence, opponents of database protection argue that Congress's best option is to pass no legislation at this time on the basis that the costs of such legislation outweigh its benefits.[92] They point to data that show both the astonishing wealth that digital property generated during the 1980s, 1990s, and into the twenty-first century,[93] as well as the significant increase in the production of databases throughout the 1990s and the first years of the twenty-first century. For example, the International Intellectual Property Alliance (IIPA), a private sector coalition formed in 1984 to represent the U.S. copyright-based industries in bilateral and multilateral efforts to improve international protection and enforcement of copyrighted materials,[94] recently commissioned a report measuring the economic impact and trade role of copyright industries in the U.S. economy.[95] The report indicated the "strength and the importance of the U.S. copyright industries to U.S. job and revenue growth and international trade."[96] Specifically, it found that in 2002, the U.S. "core" copyright industries[97] accounted for an estimated 6% of the U.S. gross domestic product ($626.6 billion), exceeding the 2001 "core" copyright share of 5.24%—an annual increase of almost 13%.[98] The U.S. "total" copyright industries[99] accounted for an

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[92] Maurer & Scotchmer, *supra* note 26, at 1129.

[93] Conley, *supra* note 26, at 2.

[94] *See* IIPA, *supra* note 90 (the seven member associations—the Association of American Publishers (AAP), the Business Software Alliance (BSA), the Entertainment Software Association (ESA), the Independent Film & Television Alliance (IFTA), the Motion Picture Association of America (MPAA), the Nat'l Music Publishers' Ass'n (NMPA), and the Recording Industry Association of America (RIAA)—represent over 1,900 U.S. companies producing and distributing materials protected by copyright law throughout the world)).

[95] STEPHEN E. SIWEK, COPYRIGHT INDUSTRIES IN THE U.S. ECONOMY, THE 2004 REPORT (2004), *available at* http://www.iipa.com/pdf/2004_SIWEK_FULL.pdf (last visited Sept. 17, 2006).

[96] *Id.* at i.

[97] *See id.* at 18 ("core" copyright industries are defined as "industries that are wholly engaged in creation, production and manufacturing, performance, broadcast, communication and exhibition, or distribution and sales of works and other protected subject matter." These industries include the press and literature; music, theatrical productions, operas; motion picture and video; radio and television; photography; *software and databases*; virtual and graphic arts; advertising services; and copyright collecting societies).

[98] *Id.* at iv.

[99] *See id.* at 18 ("total" copyright industries include the "core" copyright industries; interdependent industries (industries that are engaged in production, manufacture and sale of equipment whose function is wholly or primarily to facilitate the creation, production or use of works and other protected subject matter); partial copyright industries (industries in which

estimated 12% of the U.S. gross domestic product ($1.25 trillion), an increase of more than 54% in comparison to the "total" copyright industry share of 7.75% that was reported for 2001.[100] The "core" copyright industries employed 4% of U.S. workers in 2002 (5.5 million workers); the "total" copyright industries employed 8.41% of U.S. workers in 2002 (11.5 million).[101]

Furthermore, the report found that between 1997 and 2001, the "core" copyright industries grew at an annual growth rate of 3.19% per year, a rate more than double the annual employment rate (1.39%) achieved by the economy as a whole.[102] In 2002, the U.S. copyright industries achieved foreign sales and exports estimated at $89.3 billion, which led other major industry sectors and is a 1.1% increase from $88.3 billion in 2001.[103] The report also provides data regarding different copyright industries. The relevant industry for our inquiries—the computer software industry (including business applications and entertainment software)—saw a slight decline in 2002, from $60.74 billion in 2001 to $60 billion in 2002.[104] According to the report, piracy and bad economic conditions drastically affected the foreign sales revenue for these selected core copyright industries in 2004.[105]

The report's outlook for 2004 and forward, however, appears to be positive.[106] International Data Corporation predicts that the software industry will grow 3% to 4% in 2004, following a decline in 2003 resulting from legal enforcement against piracy and the growth of digital delivery of legitimate copyrighted materials.[107] This data does not provide numbers specifically on the database industry. This is likely because of the problem in identifying exactly what firms are part of the industry as well as the strong database interdependency by other industries, such as the manufacture, wholesale, and retail com-

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a portion of the activities is related to works and other protected subject matter and may involve creation, production and manufacturing, performance, broadcast, communication and exhibition or distribution and sales); and non-dedicated support industries (industries in which a portion of the activities is related to facilitating broadcast, communication, distribution or sales of works and other protected subject matter, and whose activities have not been included in the core copyright industries)).

[100]   *Id.* at iv.

[101]   *Id.* at v.

[102]   *Id.*

[103]   *Id.* at i–v.

[104]   *Id.* at 9.

[105]   *Id.*

[106]   *Id.*

[107]   *Id.* at iv, 9 (citing INTERNATIONAL DATA CORP., PROVIDED WORLDWIDE PACKAGED SOFTWARE INDUSTRY SALES 2001–2002).

puter and equipment sectors. The data certainly supports, however, the overall growth of the software industry.

It is possible to point to some isolated data regarding the positive growth rate of the database industry in the U.S. in the years after *Feist*.[108] Between 1991 and 1997, the number of databases increased by 35%, from 7,637 to 10,338, and the number of files in these databases has increased 180% from 4 billion to 11.2 billion.[109] Additionally, the EU Working Paper indicates that the number of U.S. database "entries" has increased by 25%, from 6,000 in 1996 to over 8,000 in 2004.[110]

Moreover, opponents point to the fact that database markets are "almost universally characterized by a distinct absence of competition,"[111] suggesting that most participants in this industry are able to make monopoly profits and probably do not face competition from either free riders or pirates. Specifically, they point to the scientific data sector as one in which most sources are natural monopolies.[112] One congressional witness succinctly explained this phenomenon during the most recent hearing on a database bill:

> It is important, nonetheless, to emphasize that a preponderance of scientific databases are produced by sole sources, whether in the public or the private sector. For example, the vast majority of observational data sets of phenomena in the natural world, as well as all unique historical factual compilations, can never be recreated independently and are therefore frequently available only from a single, original source. In other cases, scientific databases are de facto unique natural monopolies because the cost of producing the data and the potential market are such that the economics will not support multiple sources. Even when data that are similar, but not identical, to original research results or observations are available for use in non-technical applications, researchers and educators are unlikely to consider an inexact replica of a database to be a suitable substitute if it does not meet fully the original specifications. For this reason, scientific databases are particularly prone to monopoly control.[113]

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[108] Feist Publ'ns Inc. v. Rural Tel. Serv. Co., 499 U.S. 340 (1991).

[109] Williams, *supra* note 26, at xviii.

[110] *Working Paper*, *supra* note 44, at 23.

[111] *See* Reichman & Samuelson, *supra* note 19, at 70–71.

[112] *The 1999 CIAA Hearing*, *supra* note 23, at 195 (statement of Joshua Lederberg, President emeritus of Rockefeller Univ.).

[113] *The 2003 DCIMA Hearing*, *supra* note 46, at 45 (statement of William Wulf, President, Nat'l Academy of Engineering and Vice Chairman, Nat'l Research Council). *See also* Lederberg, *supra* note 112, at 197 ("[M]ost sources of scientific data are natural monopolies, either because the data contents are unique and not reproducible, as in the case of all observational data of transitory natural phenomena, or they are generated for esoteric niche markets that have a customer base too small to support more than one producer or supplier.").

This final piece of evidence regarding the scientific sector should be viewed in light of the larger picture of the way basic research was conducted in the United States in the past and the recent growing involvement of the private sector in basic research. Although the scope of this article is not limited to commercial/consumer database applications, and although its analysis applies equally to scientific databases, it does not aim to provide an extensive analysis regarding scientific databases. Such an analysis was provided in the seminal work of Professors Reichman and Uhlir[114] and in a few extensive publications of the National Research Council.[115]

In the past, basic research was mainly sponsored and subsidized by the federal government, chiefly as a result of a policy that aimed to keep results in the public domain with the realization that such research would not otherwise be conducted. A significant problem of incentives to conduct basic research also existed. This reality changed in the past few years for many reasons, and the private sector is getting more and more involved in basic research.

The increased involvement of the private sector led, in turn, to increased pressures to protect the results of such research. The U.S. federal government's policy, motivated mainly by a desire to have basic research results utilized by the private sector, contributed to privatization of such data in the 1980s by enacting two statutes that are still the subject of an ongoing debate.[116] First, the Stevenson-Wydler Technology Innovation Act[117] made technology transfer an integral part of the research and development responsibilities of federal labora-

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[114]   *See* Jerome H. Reichman & Paul F. Uhlir, *A Contractually Re-constructed Research Commons for Scientific Data in a Highly Protectionist Intellectual Property Environment*, 66 LAW & CONTEMP. PROBS. 315 (2003).

[115]   *See* NAT'L RESEARCH COUNCIL, A QUESTION OF BALANCE: PRIVATE RIGHTS AND THE PUBLIC INTEREST IN SCIENTIFIC AND TECHNICAL DATABASES (Nat'l Academy Press 1999) (looked at the competing public and private interests in scientific data and analyzed several different potential legislative models for database protection in the United States from the perspective of the scientific community); BITS OF POWER, *supra* note 37 (examined the scientific, technical, economic, and legal issues of scientific data exchange at the international level); COMPUTER SCI. & TELECOMM. BD., NAT'L RESEARCH COUNCIL, THE DIGITAL DILEMMA: INTELLECTUAL PROPERTY RIGHTS IN THE INFORMATION AGE (Nat'l Academy Press 2000) [hereinafter THE DIGITAL DILEMMA] (discussed the conundrums of protecting intellectual property rights in information on digital networks); THE ROLE OF DATA *supra* note 36 (focusing, inter alia, on the role, value, and limits of scientific and technical data in the public domain, pressures on the public domain, and the potential effects on research of a diminishing public domain).

[116]   *See generally* Rebecca S. Eisenberg, *Public Research and Private Development: Patent and Technology Transfer in Government-Sponsored Research*, 82 VA. L. REV. 1663 (1996).

[117]   Stevenson-Wydler Technology Innovation Act of 1980, Pub. L. No. 96-480, 94 Stat. 2311–20 (1980) (codified as amended at 15 U.S.C. §§ 3701–3714 (1994)).

tories and their employees. Second, the Bayh-Dole Act[118] encouraged small businesses and nonprofit organizations to patent the results of government-sponsored research by allowing them to retain patent ownership themselves, provided they were diligent about getting applications on file and promoting commercial development of the inventions.

At the same time, the Bayh-Dole Act clarified the authority of federal agencies to apply for and hold patents and to additionally license those patents to the private sector on an exclusive and nonexclusive basis. If a problem with incentives to conduct basic scientific research existed in the past, it probably could have been remedied by the passage of *sui generis* protection for databases, in addition to any incentive from government funding. In light of evidence regarding growing involvement of the private sector, such a problem does not seem to exist today. While the discussion in this section attempts to explain why there is no evidence for market failure with regard to databases production, it seems that the only market failure that needs to be remedied is the problem of monopolies in the private scientific databases sector.

The empirical evidence described above is therefore inconclusive in resolving whether additional intellectual property protection is needed for databases, since it provides neither evidence that market failure exists nor that provision of legal protection for databases actually leads to growth in the database industry, as the EU Working Paper suggests. Proponents' arguments are too speculative and are still not supported by empirical data. There is, however, overall support, for the opponents' argument regarding the health of the software industry in general and the database industry in particular, especially in the U.S. Nevertheless, the data supporting the former are too general and do not provide information regarding the database industry, and the information supporting the latter is too isolated, dealing only with post-*Feist* years. Thus, both sides fail to provide any comparison to growth rates for the years that preceded *Feist*.

The threshold question then is whether additional legal protection for databases is needed. Even if a need were shown, Congress should approach the subject with caution, taking into account both the costs and the benefits from such legislation. Certainly, if the costs outweigh the benefits, no legislative action should be taken.

Traditionally, the proponents of any change in the law, whether it concerns new rights or new limitations on rights, have borne the burden of convincing Congress of the need for the change. Proponents of new statutory rights

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[118]   Bayh Dole Act, Pub. L. No. 96-517, 94 Stat. 3015–28 (1980) (codified as amended at 35 U.S.C. §§ 200–211, 301–307 (1994)).

thus have the burden of establishing the need for such protection. Views diverge sharply, however, as to the type and degree of proof required to satisfy this burden. The options range from proof of a threat of future harm, to evidence of individual real-world problems, to empirical data generated through broad-scale studies.

In the past, decisions to make changes in intellectual property laws have often been based on evidence of one of the first two types. For example, the passage of the Semiconductor Chip Protection Act of 1984[119] was based on the flawed belief that patent protection would not be available for such products. Since computer chips bear their know-how on their face, the belief was that manufacturers would probably be exposed to the risk of free riding. In order to prevent this danger, Congress stepped in and passed legislation for their protection. In practice, this legislation has been utilized very infrequently, and the semiconductor chip industry has relied almost exclusively on patent protection.[120]

Another example of a legislative response to a perceived deficiency in the intellectual property laws is the Vessel Hull Design Protection Act of 1998 (Vessel Hull Act).[121] Interestingly, this bill[122] was considered by Congress at the same time as one of the database protection bills.[123] Unlike its fellow database

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[119] Semiconductor Chip Protection Act of 1984, Pub. L. No. 98-620, 98 Stat. 3347 (1984) (codified as amended at 17 U.S.C. § 908(a) (2005)) (protection of unregistered mask work terminates if application for registration is not made within two years of first commercial exploitation).

[120] *See*, *e.g.*, Kenneth J. Burchfiel, *The Constitutional Intellectual Property Power: Progress of the Useful Arts and the Legal Protection of Semiconductor Technology*, 28 SANTA CLARA L. REV. 473 (1988); James P. Chesser, *Semiconductor Chip Protection: Changing Roles for Copyright and Competition*, 71 VA. L. REV. 249 (1985); John G. Rauch, *The Realities of Our Times: The Semiconductor Chip Protection Act of 1984 and the Evolution of the Semiconductor Industry*, 75 J. PAT & TRADEMARK OFF. SOC'Y 93 (1993); Robert L. Risberg, Jr., *Five Years without Infringement Litigation under the Semiconductor Chip Protection Act: unmasking the Specter of Chip Piracy in an Era of Diverse and Incompatible Process Technologies*, 1990 WIS. L. REV. 241 (1990); Symposium, 70 MINN. L. REV. 271 (1985) (A major symposium issue on many aspects of the Semiconductor Chip Protection Act of 1984). *See also* Bronwyn H. Hall & Rosemarie Ham Ziedonis, *The Patent Paradox Revisited: An Empirical Study of Patenting in the U.S. Semiconductor Industry, 1979–1995*, 32 RAND J. ECON. 101 (2001) (analyzing the patenting behavior of 95 U.S. semiconductor firms during 1979–1995. Results suggest that the 1980s strengthening of U.S. patent rights spawned "patent portfolio races" among capital-intensive firms).

[121] Vessel Hull Design Protection Act, Pub. L. No. 105-304, 112 Stat. 2860 (Title V of the Digital Millennium Copyright Act of 1998).

[122] Vessel Hull Design Protection Act, H.R. 2696, 105th Cong. (1997).

[123] Collections of Information Antipiracy Act, H.R. 2652, 105th Cong. (1997).

protection bill, the Vessel Hull Act was enacted into law. The Vessel Hull Act represents a legislative response to the 1989 U.S. Supreme Court case of *Bonito Boats v. Thunder Craft Boats*.[124] In *Bonito Boats*, the Court held that the so-called "plug mold" statutes enacted by states to proscribe the copying of hull designs were unconstitutional.[125] More specifically, the Court held that states were preempted on this issue pursuant to the Supremacy Clause.[126] In fact, the Court concluded its opinion by noting that "it is for Congress to determine if the present system of design and utility patents is ineffectual in promoting the useful art in the context of industrial design."[127] Congress decided to step in after industry representatives made a strong showing of incidents of piracy of their products.[128] No evidence, however, was adduced regarding the extent of copying, or "hull splashing," in the marine industry.[129]

In practice, however, this legislation has not been used on a regular basis, despite the strong lobbying for its passage.[130] The lack of data regarding marine manufacturing prevents drawing conclusions regarding the necessity of the Vessel Hull Act. Presumably, any law which provides a private right of action for enforcement has some deterrence effect. It might be the case that the

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[124] Bonito Boats, Inc. v. Thunder Craft Boats, Inc*., 489 U.S. 141 (1989).

[125] *Id.* at 167.

[126] *Id.* at 168.

[127] *Id.*

[128] *See The 1997 CIAA Hearing*, *supra* note 26, at 31, 37, 39, 37 (testimony of Mick Blackistone, Vice President, Gov't Relations, Nat'l Marine Mfrs. Ass'n (NMMA) saying "many of NMMA's members have felt the economic effects of having their boats splashed, causing them to lose their research and development investments and potential profits from the sales of their boats as a result of unethical competitors."); (testimony of Donald Cramer, Corporate Counsel, Bayliner Marine Corporation saying "we would estimate, just on our Capri boat, that we're copied two to three thousand times—we lose two to three thousand sales per year, and at $10,000 a boat, you can see that adds up to a substantial dollar amount. . . . [I]n the boat business, copying is so common that it's done every day."); (testimony of J.J. Marie, Zodiac of North America, Inc., saying "I really am not able to put a number on that. I mean, let's take it speaking for my company, since we are the originator of the product, everything else that's out there is a copy. So, you know, it's really very hard.").

[129] U.S. COPYRIGHT OFFICE & U.S. PATENT & TRADEMARK OFFICE, THE VESSEL HULL DESIGN AND PROTECTION ACT: OVERVIEW AND ANALYSIS 20 (Nov. 2003) *available at* http://www.copyright.gov/reports/vhdpa-report.pdf ("no evidence was adduced regarding the extent of copying, or 'hull splashing,' in the marine industry either before or after the passage of the [Vessel Hull Act]").

[130] *See id.* (examines the utilization of the Vessel Hull Act during its first five years. The findings of the report are interesting, although inconclusive due to lack of sufficient information in a few respects).

existence of such legislation has achieved its goals, despite the fact that it has not actually been used by the industry.

Experiences with the Vessel Hull Act and Semiconductor Chip Protection Act demonstrates that Congress should be more demanding regarding the quality of evidence introduced during the legislative process in support of an alleged problem in need of remedy. Those arguing for economic studies of the database industry believe that a higher standard of proof is necessary both because of the need for caution before establishment of any new rights and as a result of the special problems created by protection for collections of data in particular.[131]

V.   IS ADDITIONAL INTELLECTUAL PROPERTY PROTECTION NEEDED?

A.   *De Facto Protectability of Databases*

A few major aspects that have been overlooked in the debate over database protection are the inherent features and characteristics of databases. These features probably benefit database producers to such an extent that any supplemental legal protection is likely unnecessary. Thus, these features and characteristics provide *de facto* protection for databases.[132]

1.   Database as a Service

One general characteristic of databases is that their producers provide a service and not raw data alone.[133] Consumers, especially in niche markets where

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[131]   *See*, *e.g.*, Kenneth Arrow, *Economic Welfare and the Allocation of Resources for Invention,* *in* NAT'L BUREAU OF ECON. RESEARCH, THE RATE AND DIRECTION OF INVENTIVE ACTIVITY: ECONOMIC AND SOCIAL FACTORS 609–25 (Princeton University Press 1962). *See generally* Francis M. Bator, *The Anatomy of Market Failure*, 72 Q.J. ECON. 351 (1958). *But see* Peter G. Brown, *The Failure of Market Failures*, 21 J. SOCIO-ECON. 1, 26 (1992).

[132]   This analysis is not applicable to databases in print form. I explained elsewhere that the delicate balance of protectionism versus public domain in incentivizing database production has been greatly affected by the fact that data is now, in many areas, at least, easier than ever to collect and collate and that the sunk cost of pure data collections (as opposed to all other services that databases provide) are much lower than in other types of patentable or copyrightable works.

[133]   *See* Joseph A. Saltiel, Note, *With Nowhere Else to Hide: Can the First Amendment Protect Databases*, 2001 U. ILL. J.L. TECH. & POL'Y 163, 191 (2001) (arguing that "[c]ompanies need to shift their focus to service to make money. This is what they are really selling. Their investment is the effort that went into producing the database. It is not the data but this investment that need to be protected"); Symposium, *supra* note 59, at 311 (one of the participants made the following comment: "I do not think that Merrill Lynch will free ride—they

there are very few and sometimes only sole-source database providers, are interested not only in the raw data but in the service component that accompanies the product as well. As explained below,[134] in the world of the internet, the marginal cost of production for the underlying raw data is zero; in other words, each additional copy of the data costs nothing to produce. As the price of the data is pushed towards the marginal cost, database producers compete on the basis of other features rather than the price of the underlying data. Thus, database producers will be rewarded primarily for the services they provide rather than for the mere ownership of the raw data. Within this framework, there is plenty of room for competition. In practice, this business model bundles the provision of raw data with additional services.

Services provided in addition to data include: possession of infrastructure for the provision of services, ability to provide ongoing enhancement features, and "maintenance," including, among other things, collecting, compiling, arranging, standardizing, correcting, indexing, updating, cross-referencing, and verifying what otherwise would have been a mass of unintelligible disparate data.

These services are probably a significant part of value of a database. But how does this characteristic translate into *de facto* protection? The answer is simple: the need to offer services creates a barrier to market entry for competitors. As mentioned above, the ability to provide services requires building an infrastructure, constantly updating and enhancing the service, and providing maintenance. Not every competitor, however, is willing or able to make this investment.[135] Assuming such an investment is made despite this deterring factor, competition will focus on the features provided as discussed earlier.

Data pirates are usually uninterested in providing and supporting a panel of services and are therefore unable to enter the market for databases. Usually, they are only interested in making a quick profit by selling cheaper pirated versions of databases.[136]

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are always going to have their Bloomberg. Proskauer attorneys are not going to use Jurisline; they are going to use Lexis and Westlaw . . . . I do not think that Goldman Sachs will ever go searching for free information on the Internet. The big information providers will not lose their customers by the so-called free-riding").

[134]   *See* discussion *infra* Part V.B.1.(a).

[135]   *See* Reichman & Samuelson, *supra* note 19, at 70–71 (this analysis is based on the point Professors Reichman and Samuelson make, as well as others, is that the database industry is characterized by a distinct absence of competition).

[136]   *See*, *e.g.*, IFPI, IFPI MUSIC PIRACY REPORT 3 (Jun. 2002), *available at* http://www.ifpi.org/content/library/piracy2002.pdf (providing with regard to music piracy

Some of the inherent characteristics of databases are discussed below. Despite the fact that these characteristics may be viewed as aspects of the service characteristic, they warrant separate discussion due to their importance to consumers.

a.   *Certification of Reliability and Authenticity*

Apart from the demand for additional services, consumers in general will hesitate to purchase pirated databases, especially when the source of the information and its reliability are important.

For most, if not all database consumers, there is as much value in the certification of the authenticity and reliability of a database as in the content itself. Most consumers want accurate and reliable data for their inquiries,[137] especially when utilizing databases that provide research information in the areas of business, science, health, safety, or the environment.[138] Authenticity and

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that "[p]irates don't engage in marketing and promotion. They want to make quick and easy profits . . . .").

[137]   *See also* Malla Pollack, *The Right to Know? Delimiting Database Protection at the Juncture of the Commerce Clause, The Intellectual Property Clause, and the First Amendment*, 17 Cardozo Arts & Ent. L.J. 47, n. 354 (1999) (citing Malla Pollack, handwritten notes taken at PTO Database Conference Apr. 28, 1998 (on file with Cardozo Arts & Ent. L.J.) (remarks of Jennifer Krueger, Assistant Director for Electronic Resources of the Science, Industry and Business Library, New York Public Library) (stating that Krueger will only buy from reputable sources because she needs assurance that the data will be accurate)).

[138]   *See The 2003 DCIMA Hearing*, *supra* note 46, at 45 (statement of William Wulf, President, Nat'l Academy of Engineering and Vice Chairman, Nat'l Research Council saying "even when data that are similar, but are not identical, to original research results or observations are available for use in non-technical applications, researchers and educators are unlikely to consider an inexact replica of a database to be a suitable substitute if it does not meet fully the original specifications."); *see also* Michael Freno, *Database Protection: Resolving the U.S. Database Dilemma with an Eye Toward International Protection*, 34 Cornell Int'l L.J. 165, 167 (2001) (positing that putting Micromedex's PoisIndex on the Internet may stop Micromedex from further investment in databases and cause slippery slope of private investors avoiding investments in database development). *But see The 2003 DCIMA Hearing*, *supra* note 46, at 26–27 (statement of Keith Kupferschmid, Vice President, Intellectual Property Policy and Enforcement, Software & Information Industry Association (SIIA), on behalf of the Coalition Against Database Piracy), in which examples are given to very valuable databases that are allegedly exposed to the risk of piracy. The examples include PoisIndex, an index of approximately one million entries of a wide variety of poisonous substances, including drugs, commercial and household products, and biologic substances. The typical PoisIndex user is a medical professional, usually an emergency physician or poison center specialist, who needs instant access to such information in life-threatening circumstances. Another example is MDL Drug Data Report, a database of approximately 85,000 chemical compounds with potential drug applications. This database tracks these compounds through

reliability have been traditionally protected, *inter alia*, by the law of trademarks and trade names. Thus, in cyberspace, trademark and trade name protection may largely supplant the law of copyrights and patents.

b. *Comprehensiveness and Completeness*

Comprehensiveness has been cited again and again as the major weakness in the protection of databases. This is because the lack of subjective selection of material is a prerequisite for a compilation copyright, while comprehensive databases necessarily have no subjective selection of material. Comprehensiveness, however, probably also plays a significant role in the provision of *de facto* protection.

On many occasions, consumers are interested in the most up-to-date and complete set of materials available. For example, a prominent feature of the Westlaw service is the comprehensive coverage of legal materials. One can be certain that all cases in a particular jurisdiction are included in the relevant database. This feature induces consumers to utilize the Westlaw database instead of simply using the alternative free versions of the resources.

c. *Expertise*

In today's information overload,[139] significant value lies in being able to find and obtain the most relevant information. Consequently, services that filter, review, and evaluate information are flourishing in every perceivable field. Instead of giving users access to endless items of information, these services provide users with the precise information they need.[140] Such services are based,

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stages of development and into clinical trials). These examples and others illustrate the importance of these databases to their users and the importance of the integrity of the data provider. Doctors or scientists will hesitate to purchase and rely on pirated versions of such critical databases since they need the assurance that they hold the original, up-to-date, version of the database.

[139] *See* David Lewis, *Foreword*, *in* REUTERS DYING FOR INFORMATION? AN INVESTIGATION INTO THE EFFECTS OF INFORMATION OVERLOAD IN THE USA AND WORLDWIDE 2–3 (1996) (this is a Reuter's commissioned research that investigated the effects of information overload. The research uncovered a new strain of illness brought on by the stress associated with the deluge of information: information fatigue syndrome (IFS)).

[140] *See*, *e.g.*, Factiva.com, http://www.factiva.com (last visited Sept. 17, 2006). Factiva is a service that well-known information providers Dow Jones Company and Reuters offer, providing varying levels of content according to user's needs. Most of this information can actually be found on the Internet. However, these information providers believe that users will subscribe to this service to overcome information overload.

among other things, on users' willingness to pay for the expertise of the information providers.

d.   Timeliness

Another major value for users is getting timely information.[141] Consider, for example, the financial sector. News items that may affect financial decisions are highly valued, provided that these items are delivered quickly.[142] Sometimes, this timing is a matter of seconds.[143] A service which provides data at a faster rate than its competitor would therefore fare better in market competition.

e.   Additional Characteristics

Database producers can also rely on other characteristics of their services as a source of protection. Such characteristics may include ease of information retrieval, convenience of use, added value to raw data, user-friendly software, and so on.[144] The user's choice of a particular database is, therefore, based not only on its underlying content, but also on characteristics that satisfy the user's needs.

Therefore, one may conclude that the service element inherent in most databases, together with the features discussed above, may obviate the need to guard the underlying data of databases by additional *sui generis* legal protection.

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[141]   *See* Jane Ginsburg, *Copyright, Common Law, and Sui Generis Protection of Databases in the United States and Abroad*, 66 U. CIN. L. REV. 151, 163 (1997) ("Copyright is not synonymous with commercial value, and not everything that might be the subject of a license is a subject of copyright. Here, the value is not so much in the content, as in the timing of its delivery. The same stock quote information one hour later is worthless.").

[142]   *See* Reuters.com, *About Reuters*, http://about.reuters.com/home/ (last visited Feb. 14, 2005) (detailing Reuter's products and pricing). In fact, Reuters, the world leading news provider, sets the charges of its products on elements that also count the timeliness of its news feeding. Services and products are defined according to the "freshness" of the news. Real-time news information is provided via dedicated devices at high cost. The same news—but several hours later—were supplied to cable programmers. After more time has passed, the very same news may be posted free of charge on a Website.

[143]   E.g., while trading in the Stock Exchange.

[144]   Consider, for instance, the Westlaw service. Regarding certain materials (e.g., federal case law), they are in the public domain and can be retrieved over the Internet. However, a user may prefer to search these materials at cost in the Westlaw service, even though retrieval over the Internet is free of charge for a number of reasons: the ease and convenience of the service, the greater value of the raw materials (e.g., links to referred cases and statues), the completeness of the search request, and so on.

B. *Availability of Private Market and Technological Mechanisms*

1. Market Mechanisms

a. *Markets for Information Products*[145]

As discussed above, the economic analysis regarding database protection that starts and ends in the narrow sphere of the "public goods" analysis is generally applicable to all goods protected by intellectual property law. However, a close look at the special nature of emerging markets for information products provides a better understanding of the wisdom and utility regarding granting protection to databases as a remedy to alleged market failure.

The following discussion shows that there has been a failure to grasp the significant impact that the increased use of information in digital form, the rapid growth of computer networks, and the creation of the World Wide Web has had on both products protected by intellectual property law and on products that lack such protection. Thus, the provision of intellectual property protection might not be a very promising path nor a factor that matters much.

Additionally, this discussion recognizes that market participants must employ different business models to cope with these unique market characteristics, thereby protecting themselves from technological and economic Darwinism.

Moreover, a great number of databases are simply by-products of some other principal activities that are probably properly incentivized, thus disabusing the notion that there are no incentives in place to produce databases.

It should be noted that the goal of this discussion is to question the wisdom and utility of granting protection to databases as a possible remedy to the alleged market failure. There is no attempt to argue that this comprises the extent of the issue regarding the database protection debate. As discussed later, there are other factors such as various technological mechanisms and existing legal remedies that should also be given significant weight in any discussion of the need for database protection.

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[145] The economic analysis in this part relies on Shapiro and Varian's basic explanation regarding information pricing. *See generally* CARL SHAPIRO & HALL R. VARIAN, INFORMATION RULES: A STRATEGIC GUIDE TO THE NETWORK ECONOMY 19–51 (Harvard Business School Press).

i)   First Copy Costs

A fundamental feature of information goods is that costs of production are dominated by the "first copy cost." Once the first copy of a book has been printed, the cost of printing another one is negligible. The costs of producing additional copies typically do not increase significantly, even if a great many copies are made. Recent advances in information technologies have caused the cost of distributing information to fall, meaning first copy costs comprise an even greater fraction of the total costs than they have historically. Although the fixed-costs of production are large, the variable costs of reproduction are small.[146]

This cost structure leads to substantial economies of scale; as production increases, the average costs of production decrease. The dominant component of the fixed costs of producing information is sunk costs or costs that are not recoverable if production is halted.

A useful example given in Professors Hal Varian and Carl Shapiro's insightful book, *Information Rules*, illustrates some of the classic problems of information pricing as explained above.[147] In 1992, Microsoft decided to get into the encyclopedia business. The company bought rights to *Funk and Wagnalls Encarta*, a second-tier encyclopedia that had been reduced to supermarket sales by the time of purchase. Microsoft used the *Funk and Wagnalls* content to create a CD and sold it to end-users for $49.95. Microsoft also sold *Encarta* to computer original equipment manufactures (OEMs) on even more attractive terms.

The publishers of *Encyclopedia Britannica* (Britannica) began to see its market erode and soon realized that it needed to develop an electronic publishing strategy. Its first move was to offer on-line access to libraries at a subscription rate of $2,000 per year. Large libraries bought this service but smaller school libraries, offices, and families found CD encyclopedias to be adequate for their needs and much more affordable. Britannica continued to lose market share and revenue to its electronic competition such that by 1996, its estimated sales were around half of its 1990 totals. In 1995, Britannica made an attempt to pursue the home market by offering an on-line subscription for $120 per year, which attracted very few customers. In 1996, the company then offered a CD version for $200, still significantly higher than *Encarta*.

Unfortunately for Britannica, consumers were not willing to pay four times as much for its product as for Microsoft's, and Britannica was soon in

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[146]   *See id.* at 21.

[147]   *Id.* at 19–20.

financial difficulties. By early 1996, the new owner of *Britannica* started aggressive price-cutting, reducing the yearly subscription fee to $85 and also launching a direct mail campaign offering CDs at different prices in an attempt to estimate demand. These efforts yielded only 11,000 paid subscribers. Presently, prices for CD versions of encyclopedias continue to erode. *Britannica* now sells a CD for $49.95 that has the same content as the 32-volume print version that recently sold for $1,600.[148]

This example demonstrates that an understanding of the basic economic rules of pricing information products in the digital environment can make a significant difference. The use of aggressive pricing helped Microsoft to penetrate and capture a large part of the encyclopedia market. In contrast, Britannica's attempt to rely on its prestige, its failure to grasp the market shift from the old print environment, and its inability to keep up with changes in the digital environment all led to a failure to compete with second-tier products. As discussed below, such aggressive pricing is one possible business model that competitors employ to guarantee survival in the network economy.

This example also illustrates that not even copyrighted materials, such as Britannica's and Encarta's encyclopedias, are immune from the impact of the increased use of information in digital form, the rapid growth of computer networks, and the influence of the World Wide Web. These three factors[149] decreased the value of these protectable works significantly, thus denying them the benefits of the high price structures of their old printed versions.

ii)   **Pricing at Marginal Cost**

Another major characteristic of information goods is that once several firms have made the necessary investment to create a product, competitive forces tend to drive the market price down towards the "additional copy" marginal cost. Once the sunk costs have been expended, there is no natural floor to the price apart from the cost of producing and distributing another CD that is mere pennies. Generic information on the Net—information commodities such

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[148]   *See* Britannica.com, http://www.britannica.com (last visited Sept. 17, 2006). Note that the prices in the original example have since been updated.

[149]   *See* A&M Records, Inc. v. Napster, Inc., 239 F.3d 1004 (9th Cir. 2001) (finding no error in the district court's conclusions that plaintiffs would likely succeed in establishing that the defendants, who facilitated through a peer-to-peer file sharing process, are liable as contributory and vicarious infringers); THE DIGITAL DILEMMA, *supra* note 115, at 76–78 (discussing the conundrums of protecting intellectual property rights in information on digital networks as it pertains to musical content and describing the way the music industry was affected by the digital environment).

as phone number directories, stock prices, maps, and news stories—sells at marginal cost (which is zero) because there is no fixed supply to these goods, and their incremental costs of production are small.

iii)   Tendency to Become a Commodity and the Resulting Need of Adopting Business Models

Proponents of legal protection for databases call for protection of raw data since they believe that such protection may remedy the alleged market failure problem.[150] Such an argument overlooks the tendency of generic information databases to become a commodity. This occurrence can happen when the product offered is similar or identical to other products offered by competitors and will happen regardless of the legal protection available for the underlying raw data. Generic information databases will sell then at marginal cost unless the database producer employs different business models, some of which will be discussed below, relying on features other than the raw data.[151] This analysis obviously does not apply to sole-source databases that, by their nature, have no competitors. One major business model employed to avoid such a situation is to

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[150]   *See*, *e.g.*, *The 1999 CIAA Hearing*, *supra* note 23, at 6. (testimony of Marilyn Winokur, Executive Vice President of Micormedex on behalf of Micromedex and the Coalition Against Database Piracy) (stating that "H.R. 354 addresses a basic unfairness in our legal system: its failure to protect adequately the interests of those whose hard work and substantial financial investment result in the creation and dissemination of valuable databases. H.R. 354 is about eliminating the inequity in a legal regime that allows an unscrupulous competitor to copy with impunity the contents of someone else's compilation and then destroy the first compiler's market by selling a competing, less expensive product. It is also about rectifying the injustice that takes place when a dishonest customer or a "cyberprankster"—without permission—electronically copies and makes it freely available over the Internet. In sum, it is about helping restore fairness to the database marketplace.").

[151]   *See* Black's Guide, Inc. v. Mediamerica, Inc*.*, No. C-90-0819, 1990 U.S. Dist. LEXIS 16272, at *17 (N.D. Cal. Aug. 15, 1990). The court showed great skepticism regarding the plaintiff's argument that lack of legal protection to his factual work and allowance of the continuance of alleged copying of his work would discourage publishers from undertaking the research and expense necessary to produce office leasing guides and similar publication:

> While the court recognizes the difficult situation in which publishers such as Black's are placed, the *court is not convinced that they are without any remedy*. It may be, for example, that defendants' activities would support a cause of action for conversion, or some other common law remedy. There are also *ample opportunities for Black's to build a competitive advantage for its guides based on more than the information contained in its listings.* (emphasis added).

Id.

differentiate the product from those offered by others, thus guaranteeing that there will be no close competitors.[152]

Another example illustrative of these points from Professors Shapiro and Varian's book deals with the history of CD phone books.[153] CD phone books first appeared in 1986 when NYNEX developed a directory of the New York area. NYNEX charged $10,000 per disk and sold copies to some government agencies. The NYNEX executive in charge of the product left to set up his own company, ProCD, to produce a national directory.

Phone companies would not license their computerized listings to the CD businesses at a reasonable price because they did not want to expose themselves to competition and risk their profitable Yellow Pages services. To counter this, ProCD hired Chinese workers in a Beijing factory to type in all the listings in every phone book in the United States at a cost of $3.50 per day per worker. The resulting database had more than 70 million listings. These data were used to create a master CD, which was then used to create hundreds of thousands of copies. These copies, which cost well under dollar a piece to produce, were sold for hundreds of dollars in the early 1990s and yielded a significant profit.

Other producers caught on, and within a few years competitors adopted essentially the same business model, with minor variations. Currently there are about a thousand companies,[154] if not more, that produce CD telephone directories, many of which are offered for low prices or over the Internet for free, because companies can now cover their operating costs through advertising.

The story of CD telephone directories is a classic one in database history. It exemplifies how once several firms have sunk the costs necessary to create a telephone directory—either via getting a license or going through the burdensome task of employing Chinese workers to do the work—competitive forces by the later market entrants tend to move the market price toward marginal cost, namely, the cost of producing an "additional copy." Once the sunk costs have been expended, there is no natural floor to the price of these directories, except the cost of producing and distributing another CD, which is only a few cents. As a result directory listings and other generic information commodities producers can offer their products on the internet for free, relying instead on other business models such as advertising, to recover their costs. How-

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[152] SHAPIRO & VARIAN, *supra* note 145, at 24–27.

[153] *Id.* at 23–24. The history of CD phone books was originally described in William M. Bulkeley, *Finding targets on CD-ROM phone lists*, WALL ST. J., Mar., 22 1995, at B1

[154] *See* Google.com, http://www.google.com (last visited Sept. 21, 2006) (search on Google found more than 370 million entries for directories).

ever, advertisers do not invest to the same extent in every website that offers telephone directory services. The key to attracting consumers and advertisers is to employ innovative business models, such as differentiating of a product from its competitors by offering some unique features that go beyond the provision of raw data.[155]

Differentiation is not immune to competition, and others might copy one's ideas. Keeping pace with technological and economic realities combined with an ability to respond in a timely manner may assist in avoiding commoditization of information goods.

One way to avoid copying of ideas is to assert intellectual property rights to protect either information commodities in their entirety or to some of their features. For example, adding copyrightable text to databases is one way to differentiate a non-copyrightable database. This method is employed by the legal databases LEXIS and Westlaw.[156] Again, it should be reiterated that, as illustrated by the CD phone listings example, such a tactic will likely not be effective as to the non-copyrightable raw data.

Thus far, the discussion has illuminated aggressive pricing and differentiation as two important business models employed by database producers. Professors Shapiro and Varian and others provide additional insights regarding methods and economic rules pertaining to information markets. Participants in these markets must keep such information in mind to survive and stay competitive in the information environment.[157] Many business models are currently employed in the digital environment.[158] There are many traditional business models that are used regularly in the database industry as well as in other industries. These business models include, for example, those business methods based on fees for products or services that are employed in different ways for different products,[159] those relying on advertising,[160] and those based on "free"

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[155]   SHAPIRO & VARIAN, *supra* note 145, at 26–27.

[156]   Historically, only a few firms entered the market of publication of statutes and legal opinions. With high sunk costs, there was room in the market only for a limited number of competitors. Introduction of scanning technologies enabling the scanning of materials onto CDs, and their availability in electronic form from the government significantly decreased the fixed costs of collecting information thus enabling the entry of new suppliers into the market. CDs containing huge amounts of data are available at low prices. Fortunately, West and LEXIS were able to differentiate their products, mainly by improving their search software and adding copyrightable text to their materials.

[157]   SHAPIRO & VARIAN, *supra* note 145.

[158]   THE DIGITAL DILEMMA, *supra* note 115, at 176–86 (discussing generally the role of business models in the protection of intellectual property).

[159]   For example, single transaction purchase for videos, books, etc.; subscription purchase for journal subscriptions; single-transaction license for software and most text CD-ROMs; serial

distribution.[161]   These traditional business models are not always effective in the digital environment due to sensitivity to illegal copying, piracy, and concerns related to preservation of integrity.   Therefore, database producers are required to think about less traditional business models in order to deal with the weaknesses of the traditional forms. The models discussed below are worth mentioning due to their prevalence in the database industry.   They might also enjoy, under certain circumstances, legal protection under patent law.[162]

First, when it is difficult to differentiate a product, one method is to try to sell vast quantities since selling vast quantities is one way to develop cost leadership.[163]   This volume-based strategy, however, must be rooted in adding value to raw information in order to broaden appeal and to fully exploit the economies of scale and scope.   Combining this model, where possible, with creative differentiation, such as sale of personalized products at personalized prices, also adds to one's competitive advantage.

Second, first-mover advantage—that is, early presence in the market[164]—can secure a leadership position, at least temporarily, when combined with a forward-looking approach to pricing.

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transaction license for electronic subscription to a single title, etc.; site licenses for software licenses, etc.; and payment per electronic use for information resources paid for per search, per time online, etc. *Id.* at 179.

[160]   For example, combined subscription and advertising such as the *Wall Street Journal* Website; or those relying on advertising income only. *Id.* at 179–80.

[161]   Examples include: free distribution; free samples; information goods for those who buy something else or have another income-producing relationship with the information provider, etc. *Id.* at 180.

[162]   Business methods patent protection may afford databases additional protection, since many business method patents offer protection for a novel system of processing certain types of information. *See*, *e.g.*, Peter R. Lando, *Business Method Patents: Update Post* State Street, 9 Tex. Intell. Prop. L.J. 403, 416–22 (2001) (discussing several business method patents involved in recent patent infringement litigations, of which one "is directed to an information handling system including, e.g., a digital information storage, retrieval and display system" and another one which is entitled "Online Interactive System and Method for Providing Content and Advertising Information to a Targeted Set of Viewers").

[163]   *See* Shapiro & Varian, *supra* note 145, at 27–29.

[164]   *See* Alfred C. Yen, *The Legacy of* Feist*: Consequences of the Weak Connection Between Copyright and the Economics of Public Goods*, 52 Ohio St. L.J. 1343, 1370–71 (1991). *See also* Bharat Anand & Alexander Galetovic, *How Market Smarts Can Protect Property Rights*, Harv. Bus. Rev., Dec. 2004, at 78–79 (arguing that one good strategy to combat infringement is to act before competitors can catch their breath; i.e., being first to market so that one can capture profits of monopoly scale before imitation or piracy occurs).

Third, making the content of the database easier and cheaper to buy than to steal might prove to be another useful business model. Such a model might make the database not worth the effort of copying.[165]

Fourth, giving away some digital content, while maintaining a focus on auxiliary markets, could also prove beneficial to database producers. This unconventional approach starts from the position that because digital content is so difficult to protect, a more sensible business model would treat it as if it were free, placing the value instead in the auxiliary market.[166] The discussion in *supra* Part V.A.1.(a) pointed to bundling of raw data and services as a business model or *de facto* protection mechanism employed by database producers.[167] Offering services allows database producers to charge for control.

Fifth, acquiring other companies that offer complementary products and services to database producers' products, allowing others to acquire database producers' businesses, and entering new markets, are a few business models that can be employed to gain advantages over other database producers.[168] Such

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[165]   Tom Abate, *Record Labels Fear Move to Digital Format Will Encourage Piracy Hesitancy Could Push Unprotected Method to the Fore*, S.F. CHRON., Sept. 10, 1998, at p. B1 ("We think the best way to stop piracy is to make music so cheap it isn't worth copying." (quoting Gene Hoffman, CEO of EMusic, Inc.)). *See also* THE DIGITAL DILEMMA, *supra* note 115, at 80–81 (2000) (discussing such a business model in the context of sale of musical content).

[166]   Esther Dyson, *Intellectual Value*, WIRED, Jul. 1995, at 137.

> Chief among the new rules is that 'content is free.' While not all content will be free, the new economic dynamic will operate as if it were. In the world of the Net, content . . . will serve as advertising for services such as support, aggregation, filtering, assembly and integration of content modules. . . . Intellectual property that can be copied easily likely *will* be copied. It will be copied so easily and effectively that much of it will be distributed free in order to attract attention or create desire for follow-up services that can be charged for.

Id. See also THE DIGITAL DILEMMA, *supra* note 115, at 82–83 (2000) (discussing such business model in the context of sale of musical content); Owen Gibson, *The Band with More Hits in Site*, THE GUARDIAN, Feb. 15, 2005 (showing how an innovative Website that allowed a band's fans to watch the band in the studio and share their thoughts via online diaries had helped transform Franz Ferdinand "from a Glasgow pub act to Brit award winners").

[167]   *See* Anand & Galetovic, *supra* note 163, at 77–78 (arguing that "where it's difficult to establish property rights to an asset, it can be wise to marry that asset to a complementary product" such as movement into services and customized solutions, "over which you do have some control").

[168]   *Id.* at 78–79. "Other ways for companies to get a piece of . . . [complementary products and services offered by competitors] would be to acquire other companies in these new businesses; allow themselves to be acquired by them; or enter new markets themselves." *Id.* (providing some examples of corporations that adopted such business models, such as Sony, which includes Sony Music and Sony Electronics, and Time Warner, which includes Warner Bros. Records, and Time Warner Cable, and the Internet Service provider AOL, that already

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models, however, might be impossible to employ at times under the antitrust laws if they have anti-competitive effects, such as the creation of a monopoly.[169]

Finally, another important business model utilized by database producers is employing technological mechanisms.[170]

Another important aspect that has been overlooked with regard to information markets is recognizing that a great deal of databases are simply by-products of some other principal activity that is properly incentivized. This consideration refutes the argument that there are no incentives in place to produce databases. A classic example is the *Feist* decision.[171] As discussed above, in *Feist*, the Supreme Court found a white pages telephone directory to be non-copyrightable, holding that the sole basis for protection under U.S. Copyright Law is creative originality.[172]

Feist involved the copyrightability of a white pages telephone directory.[173] The plaintiff and respondent, Rural Telephone Service Co. (Rural), held a monopoly franchise that permitted it to provide telephone service to a number of communities in Kansas.[174] Pursuant to state law, Rural produced an annually

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have a stake in music content as well as its complementary technologies and products to an extent that may require others in the industry to adjust their companies' boundaries in order to compete).

[169] Consider, for example, the business strategy employed by one of the nation's largest legal publishers, Thomson, to purchase other legal publishers. Thomson owns several major legal publishing companies in the United States, including Lawyers Cooperative Publishing Company, Bancroft-Whitney Company, and Clark Boardman Callaghan. In 1996 Thomson merged with West Publishing, another major legal publisher in the United States. This merger was under investigation by the Antitrust Division of the Department of Justice (DOJ). However, on June 7, 1996 a consent decree negotiated between the DOJ, Thomson, and West Publishing was signed that approved the merger upon the provision of license agreement. However, on Dec. 23, 1996, Judge Friedman rejected the consent decree. He did not reject the merger, nor could he have, since the merger was consummated a long time before the proceedings without objection by the DOJ. Judge Friedman instead found problems that related primarily to the license agreement. *See* United States v. Thomson Corp., 949 F. Supp. 907, 925–32 (D.D.C. 1996) *But see* United States v. Thomson Corp., No. 96-1415, 1997 U.S. Dist. LEXIS 2790, at *3–*11 (D.D.C. Mar. 7, 1997) (approving the consent decree between the parties in plaintiffs' antitrust action against defendants under the Clayton Act, requiring prompt divestiture or license of some of defendants publishing companies' legal publications and products as viable lines of business).

[170] *See* THE DIGITAL DILEMMA, *supra* note 115, at 83–89 (2000) (discussing such business model in the context of sale of musical content).

[171] Feist Publ'ns Inc. v. Rural Tel. Serv. Co., 499 U.S. 340 (1991).

[172] *Id.* at 351.

[173] *Id.* at 344.

[174] *Id.* at 342.

updated telephone directory that contained a typical white pages section.[175] The defendant and petitioner, Feist Publication, Inc. (Feist), was a publishing company that produced area-wide telephone books.[176]

In preparing its directory, Feist successfully bought permission to use the white pages from ten of the eleven telephone companies whose listings it wished to duplicate.[177] Rural was the only company that refused.[178] This refusal, however, did not deter Feist from basing part of its directory on Rural's white pages; Feist simply took the desired portion of Rural's listings and incorporated it into its own directory.[179] Rural discovered the copying and subsequently sued Feist for copyright infringement.[180]

The facts in *Feist* clearly demonstrate the following: first, *Feist* was not a serious case because there was no real "sweat of the brow" and no free riding. While in the past, creating a "white pages" directory was a labor intensive mission, requiring lots of people with file cards to handle, assemble, and check individual phone listings,[181] today's phone information is digital. Phone companies can quickly create a directory without much human input by simply assembling the names and addresses of all phone owners they have already collected when people subscribed to their business. Therefore, *Feist* did not really involve "sweat of the brow" or human effort. Also, there were incentives in place for the principal activity of the phone company, namely providing telephone services to subscribers, a by-product of which was the telephone directory. The telephone directory was simply a result of assembling information collected as part of the subscription process. Thus, the generation of a telephone directory was merely a secondary activity, a by-product of the principal activity.[182]

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[175] *Id.*

[176] *Id.*

[177] *Id.* at 343.

[178] *Id.*

[179] *Id.*

[180] *Id.* at 344.

[181] *See*, *e.g.*, Jeweler's Circular Publ'g Co. v. Keystone Publ'g Co., 281 F. 83, 93 (CA2 1922).

[182] It is interesting to note that even in the European Union, where unoriginal databases are protected by a *sui generis* right, databases that are merely byproducts of some other principal activity, also known as "spin-offs", are not protected by the *sui generis* right. In November of 2004, the European Court of Justice handed down four decisions concerning the Database Directive, implicitly suggesting that there is no reason to grant protection to databases that are generated automatically as by-products of other activities since such data did not require "substantial investment" which is a prerequisite for protection under the *sui generis* right. *See* C-338/02, Fixtures Mktg. Ltd. v. Svenska, 2004 E.C.R. I-10497. C-444/02, Fixtures Mktg. Ltd. v. Organismos Prognostikon Agonon Podosfairou, 2004 E.C.R. I-10549.

Additionally, the data in *Feist* was generated by a government-created monopolist (Rural), who was required by law to provide this information and who refused to license it.[183]   Therefore, telephone companies such as Rural do not really need incentives to create directories since these incentives exist in the form of a mandatory requirement to produce such information.

The analysis in *Feist* applies with equal force to many more databases in the marketplace, including very valuable databases such as scientific databases.   The public sector human genome project database, for example, was definitely a byproduct of the principal activity of sequencing and analyzing the human genome.[184]

Producers are likely concerned with massive appropriation of their data by competitors, while tolerating and even encouraging small-scale copying by ordinary users.

2.   Technological Mechanisms

Database producers are utilizing technological safeguards to protect their products against unauthorized use and piracy.   Indeed, increasingly sophisticated forms of technological security are being developed daily, and database producers consider such tools essential, employing them as a common business model.[185]   In recent years, legal protection has supported these technological measures and prevented their circumvention.   The following discussion briefly

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C-46/02, Fixtures Mktg. Ltd. v. Oy Veikkaus Ab, 2004 E.C.R. I-10365. C-203/02, British Horseracing Bd. Ltd. v. William Hill Org. Ltd., 2004 E.C.R. I-10415.

[183]   *Feist*, 499 U.S. at 343.

[184]   The field of public health, for example, is full of examples of databases that are created and used for different reasons than their producers initially intended. For example, the Framingham study was designed to study the path of heart disease in a small town in Massachusetts over the course of many decades. The researchers in charge of this study created an enormous database full of information about Framingham citizens' habits. The information compiled by the researchers is still being used by different entities. The creation of the database was simply a by-product of the researchers' activities. In that way, commercial exploitation of the data could not have been their incentive in creating the database. *See* The Framingham Heart Study, http://www.framingham.com/heart/ (last visited Sept. 20, 2006). Likewise, websites such as Amazon.com create enormous databases about their customers' preferences so that they can recommend new products to them. Such databases definitely have great informational value, but the incentive to create the databases was not necessarily solely the commercial exploitation of that database, but was mainly based in marketing.

[185]   *See* Anand & Galetovic, *supra* note 163, at 75–76 (arguing that denial of access to assets by keeping them behind walls can serve as a good market strategy to help companies cope with the problem of weak property rights).

describes the fundamental paradigm of the client-server communication and some specific features of that paradigm.

There are basic protections that make piracy of the raw data of a database untenable—if not impossible—when the database producer operates in the client-server environment, the dominant mode of transacting business over the internet. Almost all back-end systems accessed by remote clients in the client-server model are relational databases managed by a separate tier of application servers. A single database is made up of hundreds of tables. Database management systems (DBMS) are setup in such a way that the raw data of a given database is largely inaccessible. The front-end web interface presented to users allows clients to create proper queries through graphical selections but only in very limited ways. It is virtually impossible that a user could ever retrieve all of the raw data in a database or even a substantial chunk. All major DBMS's protect against large open-ended queries returning lots of data for security and bandwidth reasons.[186]

For databases accessed by clients communicating through servers on the internet, the only prospect of obtaining all of the information in a given database is by running query after query, changing the parameters each time. With databases over the internet, however, one cannot be certain that all of the data has been captured. This is because a database is an abstract concept that cannot be iterated through one item at a time, from the beginning to the end, like a book. In addition, databases are almost always dynamic and updated continually by administrators, data feeds from other internal or external systems, or other users.

The only way for the data to be captured would be to circumvent the protections inherent in the client-server model. This falls into the realm of hacking and, as shown elsewhere, is already illegal.[187] Therefore, if a high enough percentage of database producers participate in the client-server model rather than the other modes of information distribution, such as distributing CDs, or physically populating a user's backend systems with raw data, then the nature of the client-server system may obviate the need for additional protection.

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[186]   *See generally* Carnegie Mellon Software Engineering Institute, *Client/Server Software Architectures—An Overview*, http://www.sei.cmu.edu/str/descriptions/clientserver_body.html (last visited Nov. 10, 2006) ("Using a relational database management system (DBMS), user queries could be answered directly. The client/server architecture reduced network traffic by providing a query response rather than total file transfer.").

[187]   *See* discussion *infra* Part V.C.1.(a).

Some specific features of the client-server paradigm include four common approaches to the technological protection of digital content.[188] The first approach is file and server controls, which enhance exclusivity by restricting unauthorized access. User authentication and identification procedures deny access of files or servers to unauthorized users.

Another method of security is encryption, the use of mathematical algorithms to "scramble" and "unscramble" data. Various forms of encryption can be employed to promote exclusivity by limiting access, thereby enabling the user to know he or she is getting what they expected.

A "complementary key" or "public key" system is a third security measure the industry uses. Public key encryption requires two specific keys—a public and a private key. Each person has one private key and one public key.[189] Encryption is done with the public key, but decryption can only be done with the private key. Without the private key of the intended recipient, other parties cannot read, manipulate, or otherwise decipher the work.[190] A complementary key, thereby, prevents stealing and changing of keys that could compromise security and access.

The last security measure is the use of digital signatures. Digital signatures allow the receiver of a communication to authenticate the source and also verify that the original contents of that communication have not been altered.[191]

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[188] *See generally* WHITE HOUSE INFO. INFRASTRUCTURE TASK FORCE, WORKING GROUP ON INTELLECTUAL PROP. AND THE NAT'L INFO. INFRASTRUCTURE 177–201 (1995), *available at* http://www.uspto.gov/web/offices/com/doc/ipnii/ipnii.txt (last visited Sept. 20, 2006) (providing an overview regarding access and use of technological controls); Brian W. Esler, *Protecting the Protection: A Trans-Atlantic Analysis of the Emerging Right to Technological Self-Help*, 43 IDEA 553, 555–61 (2003) (providing an overview of technological protection measures).

[189] *See generally* Nirvikar Singh, *Digital Economy*, *in* 1 HANDBOOK OF INFORMATION SECURITY 15, 27 (Hossein Bidgoli ed., 2006) (discussing internet security); Charles Steinfeld, *Electronic Commerce*, *in* 1 HANDBOOK OF INFORMATION SECURITY 164, 170–176 (Hossein Bidgoli ed., 2006) (discussing encryption methods in e-commerce). Others may know a person's public key, but the private key should remain private.

[190] *See generally* Xukai Zou & Amandeep Thukral, *Key Management*, *in* 2 HANDBOOK OF INFORMATION SECURITY 636, 638–641 (Hossein Bidgoli ed., 2006) (discussing the various methods of cryptographic key management). A "key escrow" system adds another level of protection by placing the private key needed to decrypt an encrypted transmission in escrow with a mutually trusted third party; this party can then supervise the distribution of the message. *Id.* at 638.

[191] Steinfeld, *supra* note 188 at 170. In the common model of digital signature, an algorithm called a "hash function" is applied to the message being sent to produce scrambled statements that become a fingerprint of the message. Then, the sender encrypts the scrambled statement using the complementary key system discussed above, but in reverse, with the

These and other security measures, however, are not always effective or practical since it is possible to circumvent them, and they are generally expensive and difficult to implement.

3.   Economic and Technological Darwinism

Having articulated these basic characteristics, it is important to explain the notion of technological and economic Darwinism. As explained above, combining business models with a forward-looking approach to technological change is key to one's ability to participate in the information market. Technological and economic Darwinism refers to the inability to keep up with the fast pace of technological change and the information market's realities, providing products that are obsolete, or employing inefficient business models. These failures lead to the inability to compete in the information market.

This notion will be used to describe market players who fail to adopt a forward-looking approach to technological change and who do not understand the rules of the game in the information market. If they are unable to compete, such players should stay out of the market, and any legislative attempt to preserve such inefficient businesses should not be endorsed.

Bearing this in mind, it is interesting to look at the cases, discussed later in this section, that are constantly raised in the debate over the alleged market failure in the database industry. It should be mentioned at the outset that analyses of these cases reveal some recurring patterns. Most of these cases deal with plaintiffs who faced competition from second-generation technological substitutes. Faced with these products, they brought a copyright infringement suit or suits based on other causes of action in an effort to stop these forward-looking competitors. The courts responded differently to these challenges.

Analysis of these cases lends support to the argument that there is no market failure in the database industry. They show that all sectors, private and public, must consider whether their services, operations, and business models meet the challenges of the network economy.[192] If they do not, this occurrence

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sender's private key used to decrypt. The recipient of the message decrypts the signature and then applies the same algorithm to the message to produce another scrambled statement. A comparison of the two verifies that the message originated from the sender. *Id.*

[192] "The first line of defense against pirates is a sensible business model that combines pricing, ease of use, and legal prohibition in a way that minimizes the incentives for consumers to deal with pirates." J. Lacy et al., *Music on the Internet and the Intellectual Property Protection Problem*, Proceedings of the IEEE Int'l Symposium on Indus. Elecs. SS79 (1997) (describing a new technical protection mechanism for music, and acknowledging the power of a good business model). *See also* THE DIGITAL DILEMMA, *supra* note 115, at 76–78 (2000)

should not be viewed as a reason to enact legislation that attempts to sustain and preserve their inefficient existence. Such legislation would likely not prove useful since any attempt to rely on raw data as the major feature offered by a database provides only a short-lived advantage at best.[193]

From the cases discussed below, it appears that the reality is such that old-fashioned databases in print form, and perhaps even some of those in digital form, are obsolete. As businesses and individuals are now able to interactively collect and publish data on the internet and through online services,[194] they may well be replacing (almost entirely) the market for more traditional data sources. Thus, the importance if traditional data sources in the marketplace will likely decrease significantly. While traditional data providers that do not change themselves may be put at a disadvantage by such an evolution, it is the net benefit to the public that is paramount.[195] This situation is what technological and economic Darwinism is all about.

Throughout the nine-year consideration of this issue, proponents of legal protection for databases have yet to provide a real-world example of a database that cannot be protected under current law. This inability to cite gaps in existing laws is profoundly telling. Cases that have been raised in Congress supporting the market failure argument are very few and are instances where database producers have been unable to obtain relief from the courts against substantial copying. The most cited cases are *Warren Publishing, Inc. v. Microdos Data Corp.* (*Warren*)[196] and *ProCD, Inc. v. Zeidenberg* (*ProCD*).[197] A

(discussing the conundrums of protecting intellectual property rights in information on digital networks as it pertains to musical content, describing the way the music industry was affected by the digital environment, and suggesting as possible solutions the adoption of the following business models that provide a more attractive product and service: making the content easier and cheaper to buy than to steal, using digital content to promote the traditional product, giving away some digital content and focusing on auxiliary markets, and employing technological measures to control reproduction).

[193] This might offer some partial explanation as to why the passage of the Database Directive did not provide long-term advantages to the EU's database industry).

[194] *See* Yuval Dror, *So What Did We Have*, HARRETZ, Sept. 1, 2004 (online edition, published in Hebrew) (providing data regarding the increase in Internet users from 1998 to 2004, showing that in Dec. 1998 the number of users worldwide was 147 million (constituting 3.6% of the world's population at the time), whereas in July 2004 the number was 797 million (constituting 12.4% of the world's population at the time), an increase of 450% within less than 6 years).

[195] *See* U.S. CONST. art. I, § 8, cl. 8; TRIPs Agreement, *supra* note 5, at 1125, 1200.

[196] Warren Publ'g Inc. v. Microdos Data Corp., 115 F.3d 1509 (11th Cir. 1997) (en banc). *See also* Matthew Bender & Co. v. West Publ'g Co., 42 U.S.P.Q.2d 1930 (S.D.N.Y. 1997); Skinder-Strauss Assoc. v. Mass. Continuing Legal Educ., Inc., 914 F. Supp. 665 (D. Mass. 1995);

quick look at these cases reveals that these may well be instances in which inefficient database producers were not able to keep up with innovations in the market and do not support the alleged market failure argument.

In *Warren,* Warren Publishing published a directory of cable systems, classified by the principal communities they served.[198] The directory was apparently taken and reproduced by Microdos Data in a competitor product that was sold in software format.[199] The Eleventh Circuit, sitting en banc, ruled that there were no copyright aspects to Warren's databases that had been taken by the defendant.[200] Close examination of the case reveals that it does not represent a "common" problem of database piracy but rather supports the assertion that the plaintiff's print version could not survive the market forces of innovation. Since he failed to replace his old fashioned business with a modern one that played according to the rules of the digital network environment, he could not equally compete. He could have easily done what the defendant did—provide an advanced product that could compete in the information market by publishing the directory on the internet. Such opportunities, as the defendant already knew, were replacing the market for more traditional data sources. Because the plaintiff failed to learn the lesson in a timely manner, it attempted unsuccessfully to rely on copyright protection.

The result of this case serves the public interest since it provides the defendant with incentives to provide the public with an enhanced computerized version that will arguably serve consumers better than the plaintiff's old-fashioned paper version.

Likewise, in *ProCD*,[201] the defendant purchased ProCD's CD-ROM database of 3,000 telephone directories from around the country. He then formed a company to sell the telephone directory information online for far less than the price of the CD-ROM set. It is interesting to analyze this case in light of ProCD's past business behavior, discussed above.[202] ProCD received its initial raw data not by licensing it from Microdos but by employing Chinese workers in a Beijing factory to do the transcription of all the listings in every phone book in the United States. ProCD failed to be on guard, however, and relied exclu-

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Martindale-Hubbell, Inc. v. Dunhill Int'l List Co., No. 88-6767-CIV.-ROETTGER (S.D. Fla. Dec. 30, 1994).

[197] ProCD, Inc. v. Zeidenberg, 86 F.3d 1447 (7th Cir. 1996).

[198] *Warren Publ'g*, 115 F.3d at 1511.

[199] *Id.* at 1513.

[200] *Id.* at 1520–21.

[201] *See* discussion *infra* Part V.C.2.(e).

[202] *See* discussion *supra* Part V.B.1.(a)(i).

sively on its raw data, resulting in commoditization of its product, instead of employing other business models that could have prevented this from happening. It did not envision Zeidenberg's behavior—provision of directory services online—and was lucky to find a court that provided it with contractual relief. The court enforced a "shrink-wrap" license that limited the defendant to non-commercial use of the CD-ROMs. In a case where the defendant gave the CD-ROM set to someone else who later started the same company, ProCD would have had no privity of contract against the company and would have lost the case.

This case again exemplifies the importance of keeping pace with both technological and economic changes in the network economy. The plaintiff could have fared well in the market by abandoning an outdated business model. Unlike *ProCD*, the result of this case does not serve the public interest since it discourages producers from relying the on raw data of others in creating an enhanced and cheaper version of the product. It might be the case that the "victory" of ProCD only bought it some additional time. However, every "victory" is probably short-lived since the market for information goods will eventually bring about new challenges to ProCD that will force it to rethink its business models.

C.   *Existing Legal Protection*

Databases enjoy significant complementary forms of protection. Most prominent among these are indirect forms of protection, such as computer crime and privacy law, and direct forms of protection that include legal protection for technological means, trade secrecy, trademark law, contracts, unfair competition, and tort law, specifically the "cyber-tort" of trespass to chattels. The following discussion evaluates the scope of protection such legal mechanisms provide. In practice, however, what matters is the cumulative protection that these mechanisms provide to databases.[203]

1.   **Indirect Forms of Protection**

Legal protection of databases is not confined to traditional legal doctrines, such as copyright, trademark and contract law.[204] The emergence of da-

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[203]   *See* Trotter Hardy, *Property (and Copyright) in Cyberspace*, 1996 U. CHI. LEGAL F. 217, 226 (1996).

[204]   *See* Raymond T. Nimmer & Patricia A. Krauthaus, *Information as Property: Databases and Commercial Property*, 1 INT'L J.L. & INFO. TECH. 3 (1993).

tabases has, in fact, challenged many branches of law including criminal law and the laws of confidentiality and privacy. These laws, as will be illustrated, provide indirect protection for the commercial value of databases.

a.   Criminal Law

Criminal law protects many features of databases. For example, by dealing with computer-related crimes, the entire legal field of computer crime indirectly protects databases.[205] The target of crimes within the scope of computer crime is predominately the information that computers contain, information that might be stored in databases. Databases may therefore be one of the primary concerns of computer crime, leading to their indirect legal protection via criminal law.[206]

An example of a law resulting in indirect legal protection for databases is § 1030 of the Computer Fraud and Abuse Act (CFAA),[207] an anti-hacking statute offering protection from database piracy. § 1030, however, does not apply to all business models. While providing indirect protection to computer databases, this anti-hacking statute does not apply to printed compilations or to compilations stored on CD-ROM or similar media. In addition, similar to the state trespass claims to be discussed below,[208] § 1030 only applies where a system or network on which the database resides is harmed. This section would not apply where only the market for or value of the database itself is harmed.[209] § 1030, therefore, does not apply to all instances of suspected database piracy.

Nonetheless, database producers have sought to prevent piracy of their products using § 1030. One example is the case of *Register.com, Inc. v. Verio, Inc.*[210] This case arose when Verio, which does not offer domain name registration services but instead competes with Register.com's other services, used an automated search robot to access Register.com's publicly available WHOIS

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[205] *See* COLIN TAPPER, COMPUTER LAW 269–316 (4th ed. 1989).

[206] *See* Nimmer & Krauthaus, *supra* note 203, at 27.

[207] Computer Fraud and Abuse Act of 1986, Pub. L. No. 99-474, 100 Stat. 1213 (codified as amended at 18 U.S.C. § 1030 et seq. (1988)). *See also* 17 U.S.C. §§ 1201–1205 (2006) (dealing with copyright protection and management systems, and also making it a criminal offense to violate the prohibitions listed in §§ 1201–1202).

[208] *See* discussion *infra* Part V.C.2.(g).

[209] *See* Corey W. Roush, *Database Legislation: Changing Technologies Require Revised Laws*, 28 U. DAYTON L. REV. 269, 281–87, 296–97 (2002) (outlining the scope of the Computer Fraud and Abuse Act and arguing that it offers limited protection to databases especially since its application to them could be deemed unconstitutional).

[210] 126 F. Supp. 2d 238 (S.D.N.Y. 2000), *aff'd*, 356 F.3d 393 (2d Cir. 2004).

database. Register.com's database contained the names and contact information of customers who registered domain names. Verio then used the information for telemarketing purposes. The district court found that Verio's use of the WHOIS database likely breached the terms of service posted on Register.com's website and constituted a trespass to chattels.[211] The court also found that harvesting information from the WHOIS database was unauthorized and violated § 1030 of the CFAA. Specifically, the court found that Verio's access to the WHOIS database violated § 1030(a)(2)(C), which prohibits unauthorized access to a protected computer to obtain information. Verio accessed WHOIS without authorization to obtain data for telemarketing purposes. Furthermore, the court ruled that Verio also violated § 1030(a)(5)(C), which prohibits unauthorized access to a protected computer that causes or could cause damage to the computer system. Verio's unauthorized use of search robots caused or could cause damage to Register.com's computer system by impairing its availability.[212]

b.   *Privacy and Confidentiality Laws*

The laws of privacy/personal autonomy and confidentiality also provide indirect protection to databases. A narrow right of personal autonomy aims to guard the right of privacy of individuals under the theory of substantive due process that relies on the Fourth, Fifth, and Fourteenth Amendments of the U.S. Constitution.[213] By protecting databases containing personal data, privacy law indirectly protects databases. Such protection, however, is limited in scope since it targets the extraction of specific information pertaining to individuals in certain databases.[214] The law of confidentiality similarly provides indirect protection,[215] particularly to in-house databases.[216] Moreover, when information held in a database is obtained by improper means, the courts may even restrain third parties from using such information.

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[211]   *See* discussion *infra* Part V.C.2.(g).

[212]   *Register.com, Inc.*, 126 F. Supp.2d at 251.

[213]   U.S. Const. amends. IV, V, XIV.

[214]   *See also* The Council of the European Union, *Directive 95/46/EC of the European Parliament and of the Council of 24 October 1995 on the Protection of Individuals with Regard to the Processing of Personal Data and on the Free Movement of Such Data*, 1995 O.J. (L 281) 31 (discussing the issue of guarding the right of privacy of natural persons contained in databases).

[215]   *See generally* Allison Coleman, *Protecting Confidential Information*, *in* Computer Law 210–40 (Chris Reed ed., 1996).

[216]   I.e., a private database, which has not been commercialized for public access.

The above discussion explored the role of criminal law and the laws of privacy and confidentiality in providing indirect forms of legal protection for databases. The following discussion examines direct forms of database protection, specifically legal protection for technological measures, copyright law, trade secret law, trademark law, contract law, unfair competition, and tort law.

2.   Direct Forms of Protection

a.   *Legal Protection for Technological Measures*

In recent years, technological measures have also enjoyed legal protection. The new WIPO Copyright Treaty imposes obligations on Treaty members regarding protection of technological measures. Its major provision reads:

> Contracting Parties shall provide adequate legal protection and effective legal remedies against the circumvention of effective technological measures that are used by authors in connection with the exercise of their rights under this Treaty or the Berne Convention and that restricts acts, in respect of their works, which are not authorized by the authors concerned or permitted by law.[217]

The Treaty's provision seeks to harmonize this standard worldwide. Measures along this line were in place prior to the passage of the Treaty.[218]

The U.S. Congress has considered the implementation of the Treaty's measures regarding technical protection in the Digital Millennium Copyright Act (DMCA).[219] In the DMCA, Congress sought to combat copyright piracy in its earliest stages, before the work was even copied. Congress was concerned that the ease with which pirates could copy and distribute a copyrightable work in digital form was overwhelming the capacity of conventional copyright en-

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[217]   World Intellectual Property Organization: Copyright Treaty, Dec. 20, 1996, 36 I.L.M. 65, 71 [hereinafter WIPO Copyright Treaty]. The WIPO Copyright Treaty is in force and currently has 60 contracting parties. *See* World Intellectual Property Organization, *Treaties Statistics*, http://www.wipo.int/treaties/en/statistics/StatsResults.jsp?treaty_id=16 (last visited Oct. 10, 2006).

[218]   *See*, *e.g.*, Audio Home Recording Act of 1992, Pub. L. No. 102-563, 106 Stat. 4237 (codified as amended in scattered sections of 17 U.S.C.) (introducing the compulsory use of a technology known as "serial copy management system" for digital audio recording devices).

[219]   Digital Millennium Copyright Act, Pub. L. No. 105-304, 112 Stat. 2860 (1998) (codified as amended in scattered sections of 17, 28 U.S.C.) [hereinafter DMCA]. *See also* The Council of the European Union, *Directive 2001/29/EC of the European Parliament and of the Council of 22 May 2001 on the Harmonisation of Certain Aspects of Copyright and Related Rights in the Information Society*, 2001 O.J. (L 167) 10–19 (harmonizing EU laws to comply with the WIPO Copyright Treaty).

forcement to find and enjoin unlawfully copied material. The bill, as introduced, included some amendments to comply, inter alia, with the requirements of the Treaty. The DMCA therefore supported the efforts of copyright owners to protect their works from piracy behind digital walls with legal sanctions.

The U.S. Copyright Act, in a new Chapter 12 entitled "Copyright Protection and Management Systems," introduces legal rules that deal with the circumvention of copyright-protected works.[220] Subject to a number of exceptions, it is now a copyright offense to "circumvent a technological measure that effectively controls access to a work protected under [Title 17]," or to manufacture, sell, or traffic in products whose significant purpose is circumvention.[221] This provision regulates software devices designed to "unlock" the copy protection from a copy-protected computer program. Accordingly, these provisions would also cover software tools that are used unlawfully to decrypt an encrypted database.[222] The new chapter provides a full range of civil remedies and criminal penalties.

However, a logical question one must ask is whether the DMCA has effectively closed all remaining gaps in the wall of legal protection for digital databases. Upon preliminary examination, it appeared that it has since, regardless of the scope of copyright or other existing protection, the proprietor of a database can employ technological measures to prevent unauthorized copying and thus achieve fool-proof protection. If the measures work, there will be no unauthorized copying; if they are circumvented, the act of circumvention itself will violate the Copyright Act.

This reasoning, however, contains several flaws. First, some database proprietors will not want to use technological measures. Many of them are concerned mainly with massive appropriation and remarketing of their data by competitors, while tolerating and even encouraging small-scale copying by ordinary users. Second, the legal meaning of the phrase "a work protected under this title" is still an open question. If this phrase is interpreted as "a work falling generally within the subject matter of copyright," then circumventing a measure

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[220] 17 U.S.C. §§ 1201–1205 (2006). The DMCA provides generally in § 1201 (a)(1)(A) that "No person shall circumvent a technological measure that effectively controls access to a work protected under this title . . . ."

[221] 17 U.S.C. § 1201.

[222] The software that manages the database could provide derivative protection to the materials held in the database itself since software is a protectable subject matter under U.S. copyright law. *See* discussion *infra* note 232 and accompanying text. Therefore, any attempt to extract materials from the database at issue might also result in acts that infringe on the copyright of the computer program. Thus, the materials enjoy a derivative protection that stems from software protection.

designed to protect a database, a compilation that is clearly within the subject matter of copyright, would be illegal regardless of how thin that copyright might prove to be. However, the phrase can also be interpreted as "a work protected under this title, but only to the extent of such protection." Under such an interpretation, a court would first have to determine the extent of the traditional copyright protection in the work in question. Circumventing technological measures would then be illegal only to the extent that those measures protected copyrightable expression. Thus, for example, circumventing measures protecting *Feist*-type databases that contain no minimal modicum of creativity would not violate Chapter 12. Although the DMCA has been criticized for the scope of protection it provides producers and not users,[223] in light of courts' decisions interpreting the DMCA,[224] the first interpretation of the phrase "work protected under this chapter" as inviting a general consideration of the nature of the work will probably prevail. The constitutionality of such a reading, however, is questionable in light of *Feist*.

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[223]   *See*, *e.g.*, Pamela Samuelson, *Intellectual Property and the Digital Economy: Why the Anti-Circumvention Regulations Need to Be Revised*, 14 BERKELEY TECH. L.J. 519, 534–37 (1999); JESSICA LITMAN, DIGITAL COPYRIGHT, 143–45 (2001) (discussing possible problems with such legislation); LAWRENCE LESSIG, THE FUTURE OF IDEAS 187–90 (2001) (explaining the dangers inherent in the DMCA and arguing that we cannot claim for real property's protection in the intellectual property realm since there are inherent restrictions on Congress's power in the clause granting Congress power to regulate copyright, and in the First Amendment); Glynn S. Lunney, *The Death of Copyright: Digital Technology, Private Copying, and the Digital Millennium Copyright Act*, 87 VA. L. REV. 813 (2001) (explaining the risks inherent in the DMCA and identifying steps that courts and Congress can take to ensure that the DMCA's technological control approach is harnessed for the public interest).

[224]   *See* Universal City Studios, Inc. v. Corley, 273 F.3d 429, 435, 440–41 (2d Cir. 2001) (concerning the anti-trafficking provisions of the DMCA (17 U.S.C. § 1201 (a)(2), (b)(1)). In *Universal City Studios, Inc. v. Corley*, defendant-appellant, Eric Corley, and his company published a print magazine and maintained an affiliated website geared towards hackers. The company posted a copy of the decryption computer program "DeCSS" on its website. The decryption program was designed to circumvent the encryption technology that studios placed on DVDs to prevent unauthorized viewing and copying. On appeal, the company challenged the constitutionality of the DMCA. It argued that the injunction violated the First Amendment because computer code was speech, was entitled to full protection, and was unable to survive the strict scrutiny given to protected speech. The appellate court found that the computer code used in the program was protected speech, but that because the functional aspect of the speech was targeted, it was content neutral and survived intermediate scrutiny. The capacity of a decryption program to accomplish unauthorized and unlawful access to materials for which the studios had intellectual property rights had to inform and limit the scope of its First Amendment protection. The program had both a non-speech and speech component, and the posting prohibition in the injunction targeted only the non-speech component. *See generally* 3 MELVILLE B. NIMMER & DAVID NIMMER, NIMMER ON COPYRIGHT § 12A.06 (2005).

In summary, self-help technological measures provide sophisticated and useful solutions to database producers. Assuming the DMCA is applicable to a situation of circumventing a measure designed to protect an unoriginal database, no gaps in protection (assuming that such a gap exists) appear. However, if the DMCA is inapplicable to unoriginal databases—an interpretation that is more in line with *Feist*—then such measures might be insufficient. This insufficiency is due to the fact that the protections can be defeated by circumvention technologies, fail to prevent use of the database once someone has obtained an authorized copy, and do not protect databases in print form.

b.   *Copyright Law*

Feist changed the protection provided to databases in a few respects. Copyright in compilations became thin,[225] providing protection only when copyrightable elements of the work (for example, creative selection, coordination or arrangement) are taken.[226] Copyright law, thus, cannot prevent the copying of the entire raw data contained in a database. Also, after *Feist*, comprehensive, massive databases that do not contain any selection or arrangement and that provide complete data in a specific field are not copyrightable. These include databases that often offer consumers the opportunity to form their own arrangement and selection.

Moreover, *Feist*'s progeny arguably further weakened the thin copyright protection available to databases. Although the majority of cases after *Feist* found most databases to be copyrightable, they rarely found an infringement of copyright. Examples of this trend include decisions such as *Bellsouth Advertising & Publishing Corp. v. Donnelley Information Publishing Inc.*[227] and *Warren Publishing, Inc. v. Microdos Data Corp.*[228] Both of these decisions allowed competitors to extract substantial amounts of raw data from databases.

The U.S. Copyright Office, in its report on database protection, discussed the two main strategies database providers use to cope with these perceived flaws in copyright protection.[229] The first strategy is that database producers enhance content by adding copyrightable text, such as abstracts, descrip-

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225   *Feist*, 499 U.S. at 359.

226   *Id.* at 349.

227   999 F.2d 1436, 1446 (11th Cir. 1993) (en banc), *cert. denied*, 510 U.S. 1101 (1994).

228   115 F.3d 1509, 1520–21 (11th Cir.) (en banc), *cert. denied*, 522 U.S. 963 (1997).

229   U.S. COPYRIGHT OFFICE, REPORT ON LEGAL PROTECTION FOR DATABASES 20–22 (1997); *See also* INFORMATION INDUS. ASS'N, DATABASE PROTECTION: AN INDUSTRY PERSPECTIVE ON THE ISSUES (1995).

tive bibliography, or other kinds of texts related to database entries. Competitors who wish to copy the non-copyrightable elements therefore encounter greater barriers for extraction of materials since they would have to separate the non-copyrightable facts from the copyrightable text. The second strategy is that database producers incorporate a more subjective selection of facts or a more creative arrangement.[230]

Proponents of protection argue that the utility of such strategies is limited for a number of reasons. First, in most databases, adding textual information may be redundant and irrelevant. Similarly, subjective selection might decrease the database's value since it might reduce its comprehensiveness. Such additions also entail the investment of time and money and, in turn, may make the databases more expensive for consumers.[231] Moreover, it is unclear whether under current copyright law doctrine copyright protection for the non-data aspects of database products (such as the underlying software) may in practice make it impossible to copy the unprotected data without also copying a protected portion of the product. If data is embedded in copyright-protected code, the only way to make a cheap copy of the data may be to infringe the copyright on the software, in which case copyright law may effectively protect the data as well.

These arguments assume that database producers employ inefficient methods to satisfy copyrightability thresholds, causing them to overwhelm consumers with redundant data. As discussed above,[232] however, such practices can be viewed as business models, more specifically as differentiation of products employed as a response to competition forces in the information market. Any attempt to describe the use of such practices as inefficient, excessive, or as a waste of resources is futile. Database producers will employ such practices only if there is some value added for consumers. Although it is hard to think of existing databases that overwhelm consumers with redundant data, if they did exist,

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[230] *See*, *e.g.*, Baila H. Celedonia, *From Copyright to Copycat: Open Season on Data?*, PUB. WKLY., Aug. 16, 1991, at 35 (recommending that compilers "consider enriching their compilations in terms of subjective analysis of the facts," and attempt to incorporate "value-added subjective selection and arrangement . . . to make their products more protectable.").

[231] *See* Denise R. Polivy, Feist *Applied: Imagination Protects, but Perspiration Persists—the Bases of Copyright Protection for Factual Compilations*, 8 FORDHAM INTELL. PROP. MEDIA & ENT. L.J. 773, 797–98 (1998) ("The addition of subjective information, however, will raise the cost of producing the compilation, and the developer will pass the increased costs onto users. To the extent that users do not value the additional information enough to warrant the increased cost of access, their use of the compilation will decrease."). *See also The 1999 CIAA Hearing*, *supra* note 23, at 286 (statement of Lynn Henderson, President, Doane Agric. Servs. Co.).

[232] *See* discussion *supra* Parts V.B.1., V.B.3..

such databases would probably not survive since they would fail to satisfy consumers' expectations.

An additional layer of protection resides in the copyright and, at times, in the patent protection of computer software. As the information industry has evolved, competing databases have become less distinguished by the amount of data they contain and more differentiated by the scope of research services they provide and the ease with which subscribers can locate and retrieve data. Because front-end software defines these aspects of a database,[233] and because this software can be copyrighted under existing law, publishers are already in a position to protect what is becoming one of the most distinctive features of their database systems.[234]

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[233]   *See* Tyson & Sherry, *supra* note 26; Pollack, *supra* note 137. The author states:

> Even the expert hired by the database industry to testify in favor of the CIAA [Collections of Information Antipiracy Act] admitted that much of a database's production cost and marketable value depend on the software, as opposed to the content. People who could get the unmassaged data inexpensively from the government still choose to pay to get the "same" data from the value-added marketer with the user-friendly software. For instance, WESTLAW and LEXIS are widely used even though cases are available for free on the Internet. This is because WESTLAW and LEXIS provide highly sophisticated search software which cut search time and help locate elusive cases which are directly on point. They are also more likely to have the correct text. *Feist* did not remove search software from copyright or patent protection . . . .

> *Id.* at 115.

[234]   The tools for searching and organizing data enjoy the same level of protection as other computer programs. The scope of and limitations on software copyrights are substantial topics that are well beyond the scope of this work. Although individual cases continue to pose difficult questions of application, a general consensus about the applicable legal principles now exists as a result of the near-universal acceptance of the "abstraction-filtration-comparison" test promulgated by the Second Circuit in *Computer Associates Int'l, Inc. v. Altai, Inc.*, 982 F.2d 693, 706–711 (2d Cir. 1992) In addition, the Federal Circuit decision in *State St. Bank & Trust Co. v. Signature Fin. Group, Inc.*, 149 F.3d 1368 (Fed. Cir. 1998), *cert. denied*, 525 U.S. 1093 (1999) appears to have eliminated any doubt that software-based processes and systems comprise patentable subject matter as long as they manipulate data for some useful purpose. *Id.* at 1373–75. Indeed, *State St. Bank & Trust Co. v. Signature Fin. Group, Inc.* all but invites claims in the form of "a data processing system for [doing almost everything useful]." *Id.* Thus, information systems whose value lies primarily in their search and organization tools will find protection under the well-established principles of both copyright and patent law.

c.   *Trade Secret Law*

Certain databases may enjoy protection under trade secret law,; law that extends also to compilations of data.[235] In light of the following requirements that must be met in order to benefit from trade secrecy, only certain kinds of databases can enjoy such protection. The first requirement is the secrecy requirement, which means that the database's content must be kept confidential. Disclosure of database data through display, sale, advertising, and other methods leads to forfeiture of status as a trade secret.[236] By its nature, such a requirement limits protection only to a small group of databases. For example, databases that are produced for internal use and databases that have not been widely commercialized or publicized. If access, downloads, and other features are restricted to paying subscribers who agree that the contents of the database are secret, and if they also agree that proprietary information belonging to the database owner will not be disclosed outside the firm, trade secret protection may be invoked, provided we are not dealing with the entire industry subscribing to the same database.

In order to bring a successful claim of breach of trade secrecy, there needs to be the existence of relationship between the secret's owner and the defendant in either the form of a contract or confidential relationship.[237] Alternatively, there must be a demonstrated use of improper means such as fraud, theft, or inducement of breach of confidence.[238] Since regular use of a database is not covered, this requirement, very much like the privity requirement in contract, imposes additional limitations on the usage of this cause of action.

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[235]   RESTATEMENT OF TORTS § 757 cmt. b (1939); RESTATEMENT (THIRD) OF UNFAIR COMPETITION § 39 cmt. d (1993).

[236]   1 ROGER M. MILGRIM, MILGRIM ON TRADE SECRETS § 1.05[2] (2004). *See also* Capital Asset Research Corp. v. Finnegan, 160 F.3d 683, 685–88 (11th Cir. 1998). The case involved the company Capital Asset Research Corp. (CARC), a company that is in the business of purchasing tax executions (or liens) and tax deeds on real properties for which property taxes are owed. CARC created a database of property-specific information, tax redemption behavior, and final bid guidelines for tax deeds sold at auction. A former employee of CARC copied the databases and gave the copied databases to CARC's competitor, who used the databases to compete against CARC in purchasing properties. CARC sued for breach of contract and violations of trade secret and it lost on all claims. The court found that the database did not meet the necessary criteria to qualify as a trade secret because, among other things, the information contained in the database was publicly available. The court also found that there was no breach of the non-compete clause in the contract and, thus, no breach of contract.

[237]   2 MILGRIM, *supra.*note 235, at § 3.03.

[238]   *Id.* at § 7.03; RESTATEMENT (THIRD) OF UNFAIR COMPETITION § 43 (1995).

In the event protection is granted, trade secret protection can provide a great source of protection to database producers. It is easier to get injunctive relief to prevent loss of trade secrecy than it is to get an injunction to prevent breach of other contracts.[239] The database owner would also have a remedy (including preliminary injunction and temporary restraining order) against subscribers who disclose data or against hackers who try to gain access to the data.[240]

d. Trademark Law

Trademark law may also provide protection to databases. There are a few circumstances in which trademark law could potentially be useful to a database owner. First, unauthorized use of content from a database that is identified with a particular producer in a way that creates likelihood of confusion as to the origin of the database may be actionable under both federal and state trademark law.[241] This form of protection supports the aforementioned *de facto* feature of certification of authenticity and reliability.[242] Second, when a defendant misleads consumers into believing that its database product is the same as plaintiff's product, when in fact it is inferior in certain material respects (less up to date, inferior software, etc.) is trademark infringement.[243] Third, infringement occurs if a defendant takes plaintiff's product and sells it to consumers as its own (known as "reverse palming off").[244]

The scope of protection trademark law provides is limited since it only protects against uses of a database that confuse the consumer regarding the database's source. Furthermore, such protection will mainly serve famous brand names, such as Lexis-Nexis, the Dow Jones Company, and others.

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[239]   *See, e.g.*, A.F.A. Tours, Inc. v. Whitchurch, 937 F.2d 82, 87 (2d Cir. 1991).

[240]   *See, e.g.*, Bridge C.A.T. Scan Assoc. v. Technicare Corp., 710 F.2d 940, 946 (2d Cir. 1983).

[241]   15 U.S.C. § 1125(a) (2006); *see generally* 2 J. THOMAS MCCARTHY, TRADEMARKS AND UNFAIR COMPETITION § 23 (2nd ed. 2004). The related doctrine of dilution may also provide limited protection against certain unauthorized uses of a producer's trademark. Under federal law, a use of a mark that lessens the "capacity of a famous mark to identify and distinguish goods or services" is unlawful. 15 U.S.C. §§ 1125(c)(1), 1127 (definition of "dilution"). *See also* MCCARTHY, *supra*, at § 24.14 (discussing state anti-dilution statutes).

[242]   *See supra* Part V.A.1.(a).

[243]   *See, e.g.*, Polo Fashions, Inc. v. Craftex, Inc., 816 F.2d 145, 148 (4th Cir. 1987).

[244]   *See, e.g.*, John Wright, Inc. v. Casper Corp., 419 F. Supp. 292, 324 (E.D. Pa. 1976), *aff'd in part and rev'd in part*, 587 F.2d 602 (3d Cir. 1978). *See also* Dastar Corp. v. Twentieth Century Fox Film Corp., 539 U.S. 23, 38 (2003).

A similar source of protection that can be characterized as a *de facto* protection mechanism is the name recognition ability or reputation of a database's producer. Additional assurances for survival in the information market are afforded if a producer has a recognized name, a good reputation, and provides a good service.[245]

e.   *Contract Law*

Database producers increasingly rely on strengthened contractual provisions aimed at preventing unauthorized uses of their databases, such as those outlined in a report prepared by the U.S. Copyright Office.[246] Indeed, most database contracts contain similar terms of use regarding restriction of access and permissible conditions of use (e.g., acceptable downloading and re-dissemination).[247] The contracts also contain similar terms regarding enforcement procedures and remedies (e.g., ability to terminate subscribers' access, suspension, or discontinuation of services, etc.).[248]

Database producers also provide different types of price structures, such as charging users either a flat fee (by byte or time) for unlimited access as part of a subscription plan. Similarly, producers often differentiate prices according to the nature of database use (e.g., free access for academic/non-profit users, graduated rates for commercial users, etc.).[249] Such contractual terms generally survive claims of invalidity based on doctrines such as contract of adhesion and preemption by copyright law.

The 1996 Seventh Circuit decision in *ProCD v. Zeidenberg*[250] is the most famous opinion that held valid and enforceable a shrinkwrap license—a written agreement attached to software packages that becomes effective when a

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[245]   Symposium, *supra* note 59, at 289. *See also* Pollack, *supra* note 137, at n. 354 (citing Malla Pollack, handwritten notes taken at PTO Database Conference Apr. 28, 1998 (on file with Cardozo Arts & Ent. L.J.) (remarks of Jennifer Krueger, Assistant Director for Electronic Resources of the Science, Industry and Business Library, New York Public Library) (stating that she will only buy from reputable sources because she needs assurance that the data will be accurate)).

[246]   U.S. COPYRIGHT OFFICE, *supra* note 228, at 21–25 (1997). *See also* INFORMATION INDUS. ASS'N, DATABASE PROTECTION: AN INDUSTRY PERSWPECTIVE ON THE ISSUES (1995).

[247]   *See*, *e.g.*, LexisNexis, *General Terms and Conditions for Use of the LexisNexis® Services*, http://www.lexis-nexis.com/terms/general/ (last visited Oct. 12, 2005).

[248]   U.S. COPYRIGHT OFFICE, *supra* note 228, at 21–24 (1997). *See generally* contracts collected in INFORMATION INDUS. ASS'N, CONTRACTS IN THE INFORMATION INDUSTRY IV (Peter Marx ed., 2003).

[249]   U.S. COPYRIGHT OFFICE, *supra* note 228, at 25 (1997).

[250]   86 F.3d 1447 (7th Cir. 1996).

consumer removes the wrapping, barring the unauthorized commercial use of a computer program and unoriginal database. The court rejected the argument that such a contract is preempted by the Copyright Act.[251]

In *ProCD*, the plaintiff compiled information from more than 3,000 telephone directories into a computer database that was sold in CD-ROM format. Applying *Feist*,[252] the district court concluded that the massive extraction of data from the plaintiff's database and its utilization in a database service the defendants offered did not amount to copyright infringement.

Putting aside the copyright issue,[253] the Seventh Circuit focused on the contractual issue. The defendants purchased the plaintiff's CD-ROMs, to which shrinkwrap licenses were attached, in a retail store. As mentioned previously, shrinkwrap licenses are written agreements attached to software packages that become effective when a consumer removes the package's wrapping. Such licenses usually include provisions restricting the use of the software. In this case, the terms in the shrinkwrap license prohibited the defendants' commercial use of the CD-ROMs. The court found the defendants liable, concluding that shrinkwrap licenses are enforceable "unless their terms are objectionable on grounds applicable to contracts in general."[254] Subsequent courts followed the path of the court in *ProCD*.[255]

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[251] *Id.* at 1455.

[252] Feist Publ'ns Inc. v. Rural Tel. Serv. Co., 499 U.S. 340, 363–64 (1991).

[253] *ProCD, Inc.*, 86 F.3d at 1449 ("We may assume that this database cannot be copyrighted, although it is more complex, contains more information (nine-digit zip codes and census industrial codes), is organized differently, and therefore is more original than the single alphabetical directory at issue in *Feist Publications, Inc. v. Rural Telephone Service Co.*") (Easterbook, J.). It should be pointed out that this is one of a few instances that the ruling in *Feist* was distinguished.

[254] *Id.* at 1449. The court offers the following examples for objectionable terms: terms that violate a rule of positive law and terms that are unconscionable.

[255] *See, e.g.*, Wrench LLC v. Taco Bell Corp., 256 F.3d 446, 455 (6th Cir. 2001) (holding that a state law contract claim is not preempted by federal copyright law); Lipscher v. LRP Publ'ns Inc., 266 F.3d 1305, 1318 (11th Cir. 2001) (same); Bowers v. Baystate Techs. Inc., 320 F.3d 1317, 1324–25 (Fed. Cir. 2003) (same); Lattie v. Murdach, No. C-96-2524 MHP, 42 U.S.P.Q.2d (BNA) 1240, 1244–45, 1997 U.S. Dist. LEXIS 3558, *11–12 (N.D. Cal. Jan. 8, 1997) (same); I. Lan Sys. Inc. v. Netscout Serv. Level Corp., 183 F. Supp. 2d 328, 338 (D. Mass. 2002) (embracing the court's holding in *ProCD* and enforcing a clickwrap license). *But see* Vault Corp. v. Quaid Software Ltd., 847 F.2d 255, 269 (5th Cir. 1988) (affirming district court holding that shrinkwrap software license was a "contract of adhesion" unenforceable under Louisiana law absent a preempted state statute); Shoptalk Ltd. v. Concorde-New Horizons Corp., 897 F. Supp. 144, 147 (S.D.N.Y. 1995) (declining to enforce contractual obligation to pay royalties after the expiration of the copyright in the work for which they were paid).

Contract law, therefore, seems to provide an additional source of protection for database producers. Proponents of database legislation, however, argue that contracts suffer from a few shortcomings. First, contracts bind only those in privity and not unrelated third parties.[256] Databases that are distributed to a small group of customers might, therefore, be less susceptible to this problem than databases marketed to a large group of customers. Second, the remedies available for breach of contract differ from those the Copyright Act provides.[257] Third, contract laws are not uniform, since they are state law creations.[258] Fourth, since databases are marketed globally, database producers might not be able to enforce their contracts in foreign jurisdictions. Lastly, the enforceability of such contracts remains questionable.

In May 1997, the American Law Institute (ALI) adopted an amendment to the draft of § 2B-308 of the Uniform Commercial Code (UCC) that concerns mass-market licenses. The amendment provided that, "[in a mass-market license,] a term that is inconsistent with any of the provisions of copyright law . . . cannot become part of an exclusive contract under [the mass-market] section."[259] However, in July 1997, the National Conference of Commissioners

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[256] *See ProCD, Inc.*, 86 F.3d at 1454 (stating that contracts "generally affect only their parties"); Wilde v. First Fed. Sav. & Loan Ass'n, 480 N.E.2d 1236, 1242 (Ill. App. Ct. 1985) (validly formed contract held not enforceable against one who is not in privity).

[257] Specific performance of contract is rarely available while injunctive relief is standard in copyright cases. *See* E. ALLEN FARNSWORTH, FARNSWORTH ON CONTRACTS §§ 12.4–12.6 (2004) (stating that courts historically have been unwilling to compel performance of contract if legal remedy of damages is adequate to protect injured party); 17 U.S.C. § 502 (2005). Copyright law provides statutory damages and award of costs and attorney's fees under certain circumstances whereas plaintiff must prove damages in a breach of contract action. *See* RESTATEMENT (SECOND) OF CONTRACTS § 352 (1981); U.C.C. § 1-106 cmt. 1; U.C.C. § 2-715 cmt. 4 (2004); FARNSWORTH, *supra*, §§ 12.8–12.9. The Copyright Act permits statutory damages "in a sum of not less than $500 or more than $20,000 as the court considers just," and up to $100,000 in the court's discretion for willful infringement. 17 U.S.C. § 504(c). Costs and attorney's fees may be awarded to the prevailing party in the court's discretion. 17 U.S.C. § 505 (2005).

[258] *ProCD v. Zeidenberg* was decided based on Wisconsin Uniform Commercial Code. *See ProCD, Inc. v. Zeidenberg*, 908 F. Supp. 640, 651 (W.D. Wisc. 1996), *rev'd*, 86 F.3d 1447 (7th Cir. 1996).

[259] Proceedings of the 74th Annual Meeting, American Law Institute (May 19, 1997), at 122 (statement made by Professor McManis, proposing an amendment to § 2B-308). *Cf.* The Database Directive, *supra* note 8 (adopting a very different approach). Under the Directive, certain contractual terms are deemed null and void. *Id.* at art. 15 (stating that "any contractual provision contrary to Articles 6(1) and 8 shall be null and void"). The Database Directive makes provisions in this respect in two instances. First, securing the lawful user rights of access and normal use, *id.* at art. 6.1 (asserting that actions of a lawful database user that are necessary for the purposes of access to the database content and for its normal use shall not

on Uniform State Laws (NCCUSL) opined that Article 2B should not address this issue. The efforts to adopt the proposed UCC Article 2B were abandoned in favor of the Uniform Computer Information Transactions Act (UCITA),[260] which essentially ratifies the click-wrap agreement and facilitates online mass consumer contracts governing the sale of "online information."[261]

The rise of contracts modifying copyright law, due in part to the falling costs of contracting, raises an important question: should authors be completely permitted to control the use of their intellectual property independent of the law? For example, should authors be able to provide protection to materials such as non-copyrightable compilations of data or to deny statutory privileges such as fair use, control of which could only be achieved by law?[262]

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require any authorization; normal use of a database might be involved in performing acts that otherwise infringe database copyright), and second, regarding rights and obligations of lawful users with respect to the *sui generis* rights, *id.* at art. 8 (secures the right of a lawful database user to extract or re-utilize insubstantial parts of the database contents for any purposes whatsoever).

[260] As of Dec. 3, 2004 UCITA had been adopted by two states (Maryland in 2000 and Virginia in 2001). A few states (Iowa, North Carolina, West Virginia, Vermont) adopted anti-UCITA legislation or "bomb-shelter" legislation, intended to prevent a vendor from applying, for instance, Maryland's UCITA law provisions on residents in a bomb-shelter state. *See* http://www.ala.org/ala/washoff/WOissues/copyrightb/ucita/states.htm#c (last visited Feb. 9, 2005).

[261] This move has been widely criticized. *See*, *e.g.*, Symposium, *Intellectual Property and Contract Law for the Information Age: The Impact of Article 2B of the Uniform Commercial Code on the Future of Information and Commerce*, 87 CAL. L. REV. 111, 166–68 (1999); Lawrence Lessig, *Pain in the OS*, THE INDUS. STANDARD, Feb. 5, 1999, at 32, *available at* http://www.lessig.org/content/standard/0,1902,3423,00.html (arguing that while the rhetoric of this move is grounded in the "freedom of contract," the code actually does nothing to ensure that the contracting process produces understanding of the terms of the contract by both parties to the contract but simply ratifies the contract that the seller proposes). *See also* Walter A. Effross, *The Legal Architecture of Virtual Stores: World Wide Web Sites and the Uniform Commercial Code*, 34 SAN DIEGO L. REV. 1263, 1328–59 (1997).

[262] An argument is raging about whether, even through law, this modification of the default copyright law should be permitted. Mark. A. Lemley has catalogued the provisions of the U.S. Copyright Act that are arguably put at risk by contracting behavior. *See* Mark A. Lemley, *Beyond Preemption: The Law and Policy of Intellectual Property Licensing*, 87 CAL. L. REV. 111 (1999)*; see also* A. Michael Froomkin, *Article 2B as Legal Software for Electronic Contracting—Operating System or Trojan Horse?*, 13 BERKELEY TECH. L.J. 1023, 1044–46 (1998); Michael J. Madison, *Legal-War: Contract and Copyright in the Digital Age*, 67 FORDHAM L. REV. 1025 (1998); David Nimmer et al., *The Metamorphosis of Contract into Expand*, 87 CAL. L. REV. 17, 40–41 (1999); Maureen A. O'Rourke, *Copyright Preemption After the ProCD Case: A Market-Based Approach*, 12 BERKELEY TECH. L.J. 53, 69 (1997); Pamela Samuelson, *Intellectual Property and Contract Law for the Information Age: Fore-*

Extensive debate, in fact, developed regarding the latter fair use exam-ple. Some argued that authors should be permitted to control the fair use of their works via contracts and that such increased power to control use is, indeed, not inconsistent with fair use.[263] Fair use, these commentators argue, defined the rights in an era where metering and charging for use was not possible. In that context, fair use set a default rule that parties could always contract around. In light of the above discussion, the approach of those who believe authors should not be allowed to contract around the availability of the fair use defense, arguing that it is not optimal from the consumer point of view, is more appropriate. These commentators emphasize the importance of the fair use defense as an inherent building block of copyright law, one which significantly enhances the substantive value of intellectual commons. This debate is part of a larger debate over the architecture of cyberspace and raises complex issues that are beyond the scope of this work.[264]

Despite its shortcomings, database producers' reliance on contract law provides additional source of protection to databases.

f.   *Unfair Competition—State Misappropriation Doctrine*

Unfair competition law refers to a range of protected interests[265] in pre-venting practices that are unfair, such as those practices that undermine an es-tablished public policy or are immoral, unethical, oppressive, unscrupulous, or substantially injurious to consumers.[266] Different interests are protected by intel-

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[263]   *See* Tom W. Bell, *Fair Use vs. Fared Use: The Impact of Automated Rights Management on Copyright's Fair Use Doctrine*, 76 N.C. L. REV. 557, 581–84 (1998) (arguing that technol-ogy will prove more effective than fair use in curing the market failure that results when transaction costs discourage otherwise value-maximizing uses of copyrighted work).

word to Symposium, 87 CAL. L. REV. 1, 12–13 (1999); William W. Fisher III, *Property and Contract on the Internet*, 73 CHI.-KENT L. REV. 1203, 1232–33 (1998).

[264]   *See, e.g.*, LAWRENCE LESSIG, CODE AND OTHER LAWS OF CYBERSPACE 122–41 (1999); JAMES BOYLE, SHAMANS, SOFTWARE, AND SPLEENS: LAW AND THE CONSTRUCTION OF THE INFORMATION SOCIETY 169 (1996).

[265]   *See* Paris Convention for the Protection of Industrial Property, Sept. 5, 1970, 21 U.S.T. 1629, 828 U.N.T.S. 305 [hereinafter Paris Convention] (includes provisions regarding causing con-fusion and misleading and discrediting competitors). Article 39 of the TRIPs Agreement also introduces the protection of undisclosed information in the course of ensuring effective pro-tection of unfair competition as provided in Article 10bis of the Paris Convention. *See also* Model Provisions on Protection against Unfair Competition, No. 832 (E) (Geneva, WIPO, 1996), *reprinted in* ANSELM KAMPERMAN SANDERS, *supra* note 22, at app.

[266]   *See* ANSELM KAMPERMAN SANDERS, *supra* note 22 at 6–8.

lectual property law, provided they are within its subject matter.[267] Furthermore, different jurisdictions protect various interests under the heading of "unfair competition."[268]

Unfair competition law may provide an additional layer of protection to databases under certain circumstances. Under U.S. law, state common law theories of misappropriation provide an additional source of protection. The Supreme Court 1918 decision in *International News Service v. Associated Press* (*INS*)[269] is the seminal case establishing these theories. The Court held that International News Service could not copy and publish news items that the Associated Press gathered before the Associated Press published them. Such behavior was prohibited. In the Court's words: "One should not reap where one has not sown."[270]

Throughout the years, different state courts relied on *INS* when they encountered similar scenarios.[271] These courts, however, applied the doctrine in

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[267] I.e., patents; copyrights; trademarks; industrial designs, etc.

[268] ANSELM KAMPERMAN SANDERS, *supra* note 22, at 6–7. The author suggests developing an action of "malign competition," based on the doctrine of unjust enrichment, to overcome these varieties. Sufficient elements of this action exist, as the author demonstrates, both in civil and common law jurisdictions.

[269] Int'l News Serv. v. Associated Press, 248 U.S. 215, 245 (1918).

[270] *Id.* at 221.

[271] *See generally* Douglas G. Baird, *Common Law Intellectual Property and the Legacy of* International News Service. v. Associated Press, 50 U. CHI. L. REV. 411 (1983). The Supreme Court also cited *INS* several times during the 1980s and 1990s. *See*, *e.g.*, *Feist*, 499 U.S. at 354 (stating that legal protection for facts "may in certain circumstances be available under theory of unfair competition"); Carpenter v. United States, 484 U.S. 19, 26 (1987); San Francisco Arts & Athletics v. U.S. Olympic Comm., 483 U.S. 522, 532 (1987) ("Yet this recognition always has been balanced against the principle that when a word acquires value 'as the result of organization and the expenditure of labor, skill, and money' by an entity, that entity constitutionally may obtain a limited property right in the word."). Congress also referred to it while crafting the Copyright Act's preemption provision, 17 U.S.C. § 301. *See* H.R. REP. No. 94-1476, at 132 (1976), *reprinted in* 1976 U.S.C.C.A.N. 5659, 5748 ("For example, state law should have the flexibility to afford a remedy (under traditional principles of equity) against a consistent pattern of unauthorized appropriation by a competitor of the facts (i.e., not the literary expression) constituting 'hot' news, whether in the traditional mold of *International News Service v. Associated Press*, 248 U.S. 215 (1918), or in the newer form of data updates from scientific, business, or financial data bases."); S. REP. No. 94-473, at 116 (1976) ("The proprietors of data displayed on the cathode ray tube of a computer terminal should be afforded protection against unauthorized printouts by third parties (with or without improper access), even if the data are not copyrightable.").

different circumstances, thereby contributing to a level of uncertainty regarding its scope and definition.[272]

The opportunity to define and clarify the scope of the misappropriation doctrine came in 1997 when the Second Circuit decided *National Basketball Association v. Motorola, Inc.* (*Motorola*).[273] The court held that § 301 of the Copyright Act did not preempt a narrow form of common law misappropriation. It also used the opportunity to clarify and delineate the circumstances or factors in which such a claim under New York common law will not be preempted:

- The plaintiff generated or gathered information through a substantial expenditure of financial resources or time;

- The information is time-sensitive;

- Defendant's use of the information constitutes free-riding on the plaintiff's efforts;

- The defendant is in direct competition with a product or service offered by the plaintiff; and

- The ability of other parties to free ride on the efforts of the plaintiff or others would so reduce the incentive to produce the product or service that its existence or quality will be substantially threatened.[274]

Applying these factors to *Motorola*, the court held that the National Basketball Association did not prove free riding by the defendant or a sufficient competitive impact on the markets for its products.[275]

Nonetheless, some of the proponents of database legislation argue[276] that the misappropriation doctrine is insufficient. They claim that the "hotness" or timeliness elements required by *Motorola* prevent protection to many investment-rich databases that contain historical or timeless information. Second, they argue that in the new internet reality, direct competitors are not the only source of threat to the commercial value of a database. Unauthorized use by parties that are not competing directly with database producers, such as multiple uses by a database user or commercial entity that is preparing a different type of

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[272]   *See*, *e.g.*, Metropolitan Opera Assoc. Inc. v. Wagner-Nichols Recorder Corp., 101 N.Y.S.2d 483 (N.Y. Sup. Ct. 1950), *aff'd*, 107 N.Y.S.2d 795 (1951).

[273]   Nat'l Basketball Ass'n v. Motorola, Inc., 105 F.3d 841 (2d Cir. 1997).

[274]   *Id.* at 845.

[275]   *Id.* at 853–54.

[276]   U.S. COPYRIGHT OFFICE, *supra* note 228, at 82–84 (1997).

product, may also harm the database's commercial value.[277] Lastly, proponents comment that requiring proof of reduction of incentives to produce as part of the elements constituting the cause of action should not be considered as such but rather should be considered as part of evaluating the degree of damage suffered as a result of the misappropriation.

Additionally, a layer of complexity is added because such a doctrine does not exist in every state, and its application is not uniform within and between states since it can be interpreted differently. This, in turn, contributes to even greater uncertainty.[278]

In response to critiques of the doctrine, some argue that the "hotness" requirement is a reasonable criterion for protection given the economic value of timely updates. They also argue that limiting the claim to unauthorized uses made by competitors is preferable in order to avoid chilling effects on the development of new database products.

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[277] *Cf.* 17 U.S.C. § 107(4) (2006) (in determining fair use, courts are to take into account effect of use on work's potential market).

[278] *See*, *e.g.*, Info. Handling Servs., Inc. v. LRP Publ'ns, 54 U.S.P.Q.2d 1571 (E.D. Pa. Apr. 18, 2000), 2000 Copr. L. Dec. P28, 177 (E.D. Pa. Sept. 20, 2000) (showing that a case of database piracy in which a misappropriation claim (and several other states claims) proved unavailing). Information Handling Services (IHS), a company that creates value-added databases of publicly available government information, brought the action when it found that LRP had copied its database and produced a less expensive alternative. Consequently, IHS "suffered significant losses." As a result, IHS sued on several theories, including violations of state unfair competition laws, misappropriation laws, and trade secret laws. However, the District Court for the Eastern District of Pennsylvania held that each of these state law claims, except for the contract claims, were preempted by the Copyright Act. *Id.* In addition, the court expressed doubt that the contract was enforceable, but because the court was merely deciding a motion to dismiss, it determined that the ultimate enforceability of the contract did not need to be decided. *See also TicketMaster Corp. v. Tickets.com, Inc.*, No. 99-07654, 2000 WL 1887522 (C.D. Cal. Aug. 10, 2000), *aff'd*, 2 Fed. Appx. 741 (9th Cir. Jan. 8, 2001); 2003 Cop. L. Dec. P. 28,607 (C.D. Cal. Mar. 7, 2003) and *Lowry's Reps. Inc. v. Legg Mason, Inc.*, 271 F. Supp.2d 737 (D. Md. 2003), in which Legg Mason employees posted a single subscription email report to a company intranet and distributed the report internally. The court held that Lowry's hot news misappropriation claim was preempted by copyright law. The court stated that:

> '[F]ree-riding' . . . , the only element that constitutes a wrongful *act*, seems indistinguishable from the right to reproduce, perform, distribute or display a work. . . . The other elements do not describe any behavior at all. The cost of generating the information, its time-sensitivity, and direct competition between the parties merely define pre-existing conditions; the threat to the plaintiff's business merely identifies a consequence of the act of 'free-riding.'

Id. at 756.

Whether the misappropriation doctrine, as formulated in *INS* and *Motorola,* is required in the current digital network environment is questionable in light of the above discussion. It might simply be the case that the holding in *INS* was required at the time the case was decided given the state of technological development. Databases today, which can consist of highly time-sensitive information, such as stock or commodities quotations, seem to enjoy sufficient *de facto* protection. Second comers have little incentive to copy this sort of data since it loses most of its value very quickly, almost immediately in fact. For this reason, publishers also have little incentive to take special measures to detect copying.

Notwithstanding the remarks just made, assuming that proponents of database legislation show that a problem exists that requires remedy, the misappropriation doctrine should be viewed as one possible viable candidate in solving the problem because it draws the correct balance—prohibiting conduct that is most likely to cause commercial harm, while allowing public interest type of uses. Indeed, the current database bill[279] is formulated in a manner that literally follows the language of *Motorola*.

g.   *Tort Law—Trespass to Chattels*

The tort of trespass to chattels has traditionally existed where there is unauthorized interference with or use of personal property.[280] In recent years, database owners have begun to assert trespass to chattels as a basis for protecting their proprietary computer system and databases despite the traditional applicability of this tort. This new form of claim, also known as "cyber-trespass," focuses on whether someone is authorized to access the database, the level of the approved access, and the means used to circumvent that authorization.[281]

While several courts have accepted the cyber-trespass theory, only in rare cases does it provide a remedy against database piracy.[282] One significant

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[279]   Database and Collections of Information Misappropriation Act of 2003, H.R. 3261, 108th Cong. § 3(a) (2003).

[280]   Thrifty-Tel, Inc. v. Bezenek, 54 Cal. Rptr. 2d 468, 473 (Cal. App. 1996). *See also* John D. Saba, Comment: *Internet Property Rights: E-Trespass*, 33 St. Mary's L.J. 367, 372 (2002).

[281]   Edward W. Chang, *Bidding on Trespass: e-Bay, Inc. v. Bidder's Edge, Inc., and the Abuse of Trespass Theory in Cyberspace-Law*, 29 AIPLA Q.J. 445, 449 (2001).

[282]   *See* e-Bay, Inc. v. Bidder's Edge, 100 F. Supp. 2d 1058 (N.D. Cal. 2000). Unlike real-time aggregators, which merely search the relevant website pursuant to a search request, Bidder's Edge (BE) copied e-Bay's entire databases by employing automated data extraction tools, called "web crawlers," "robots," or "spiders" to extract e-Bay's auction listings for posting on BE's site. e-Bay brought several claims against BE, including a trespass claim under

limitation on state trespass claims is that they do not apply to databases that are distributed on printed materials, CD-ROMs, or other traditional media. Also, trespass claims will likely be successful only where a plaintiff can prove server or network damage. Most database publishers are not likely to be able to provide such evidence.[283] In addition, because applying state trespass claims to the

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California law. The court agreed with e-Bay's trespass claim, holding that, if BE's crawling activities were allowed to continue unchecked, it would encourage other auction aggregators to engage in similar searching activities. The cumulative effect caused by similar auction aggregators could be severe, possibly causing e-Bay's system to suffer gaps in service or crash altogether (despite the fact that BE's present activities were found to have a minimally detrimental effect on e-Bay's website). As evidenced in other court cases since this decision, the e-Bay decision has no applicability to most of the databases on the market. It applies only to those companies that find their services "crawled" by electronic agents to such a magnitude that the hosting system or network may become overburdened. It is also important to note that the injunction issued in this case: (1) does not prevent the pirate from distributing the information it extracted, (2) does not apply outside the state of California, and (3) does not protect database publishers who distribute their databases on printed materials, CD-ROMs, or other traditional media. *See also* Register.com, Inc. v. Verio, Inc., 126 F. Supp. 2d 238, 248–51 (S.D.N.Y. 2000); Laura Quilter, *Regulating Conduct on the Internet: The Continuing Expansion of Cyberspace Trespass to Chattels*, 17 BERKELEY TECH. L.J. 421, 431–32 (2002) (suggesting that trespass to chattels is not the right legal approach for dealing with the problems caused by non-permissive communications. Relaxing the doctrine of trespass to chattels from its traditional restraints has created a completely malleable doctrine that poses a real threat to the fundamental activities underlying the Internet); Clifton R. Merrell, Note, *Trespass To Chattels in the Age of the Internet*, 80 WASH. U. L.Q. 675, 679–80 (2002). *But see* Daniel J. Caffarelli, Note, *Crossing Virtual Lines: Trespass on the Internet*, 5 B.U. J. SCI. & TECH. L. 6, 25–26 (1999) (suggesting the acknowledgement of property interest in websites so that creators and owners would be able to better protect their investments in their websites and more fully safeguard their commercial and personal interests on the Internet).

[283] The limitation on a trespass claim can be seen in the case of *TicketMaster Corp. v. Tickets.com, Inc.*, No. CV 99-07654 HLH, 2000 WL 1887522 (C.D. Cal. Aug. 10, 2000), *aff'd*, 2 Fed. Appx. 741 (9th Cir. Jan. 2001); 2003 Cop. L. Dec. P. 28,607 (C.D. Cal. Mar. 7, 2003). The facts are as follows: Tickets.com established a deep link to the concert information located on TicketMaster's website. When TicketMaster became aware of the deep link, TicketMaster sued Tickets.com under various claims based on the unauthorized deep linking. After the court ruled against TicketMaster, TicketMaster implemented technology that prevented deep-linking to its concert listings. Thereafter Tickets.com found a way to circumvent this technology by using "spiders" or web crawlers to copy TicketMaster's internal web pages, extract the concert information (such as the date, price, time, venue, and performer) and post it on Tickets.com's website in a different format. TicketMaster then sued Tickets.com for copyright infringement, breach of contract, misappropriation and trespass. None of these claims were successful and no injunction was issued. With regard to the trespass claim, the court found that the facts TicketMaster presented were compellingly different from those e-Bay offered in its lawsuit against Bidder's Edge. Unlike the situation in the Bidder's Edge case, TicketMaster could not "present the specture [sic] of dozens or more parasites

internet is still relatively new, there is no guarantee that other states will follow the interpretation of these claims made in the district courts of California and New York.[284] As in other cases of reliance on state law, substantial variations among states exist. Lastly, it is unclear whether the trespass claim is preempted under § 301 of the Copyright Act.[285]

VI.   CONCLUSIONS

The discussion began by posing the main economic dilemma regarding the database debate of incentives vs. dissemination. It then analyzed existing empirical data regarding the database industry and found that such data are inconclusive. It then raised the question of whether additional intellectual protection is needed and concluded that database producers have many tools at their disposal to stay competitive: *de facto* protectability of databases, availability of private market and technological mechanisms, and existing legal protection. When producers fail to take advantage of these tools and fail to keep up with technological and economic changes in the information environment, it would be inappropriate for Congress to intervene and protect the economic interests of traditional database producers. By analogy, if internet technologies that enable the reservation of flights online result in many travel agents losing their jobs or in a significant decrease in the demand for their services, surely Congress would not pass a law designed to force people to utilize travel agents. Congress cannot run the risk of moving backwards to sustain such inefficient businesses.

There is no doubt that traditional database producers are experiencing an unprecedented force of new and innovative forms of competition. There is no public interest to be served, however, by enacting a law against what may ultimately be the beneficial consequence of advancing technology. Such a law would protect incumbent database producers against healthy, resourceful, new forms of competition and/or natural changes in the marketplace demand for their

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joining the fray." TicketMaster subsequently lost its appeal. Remarkably, the TicketMaster case was decided by the court that earlier had held for e-Bay on its trespass claim.

[284]   *See* discussion *supra* notes 258–259.

[285]   Trespass cause of action is not necessarily preempted under Section 301 of the Copyright Act because the gravemen of the trespass claim does not involve any of the exclusive rights of Section 106 of the Copyright Act. Its focus is on the intermeddling with or use of personal physical property, not the reproduction or distribution of or the making of derivative works from copyrighted works. The additional element present and required to avoid preemption is that of unauthorized use of a tangible computer system, not the intangible copyright.

products.[286] Indeed, the goal of intellectual property laws always has been and should remain the promotion of progress in science and useful arts, not the protection of financial interests of declining industries.

The following testimony of a proponent of database legislation reveals the weakness of database producers' arguments and shows that they lobby for legal protection to spare themselves the bother of improving their products. Refusing to accept the dictates of competition in the information market and to keep up with technological pace through restructured business models, the president of Doane Agricultural Services Company, who represented the agricultural sector during the ongoing database protection debate in Congress, admitted the following:

> [P]irates could simply put me out of business or *at least force me to construct so many legal and technological walls around our products* that they become far less useful to this Nation's farmers (emphasis added).[287]

The above discussion can also offer an explanation of why the database industry is thriving in spite of the fact that databases are not protected. Under the current legal regime that disallows protection to raw data, database producers are forced to compete on the provision of other features and cannot rely solely on the raw data. This leads to enhancement of the value of databases that are being produced. Therefore, protection might serve as an inhibiting factor in development of this market.

As demonstrated above,[288] it is a reality that database producers cannot rely solely on raw data. There is no doubt that legal protection for raw data might provide some lead-time to database producers. With the exception of sole-source databases, however, it is only a matter of time until a competitor manages to get the same raw data. The example of LEXIS and Westlaw is illustrative of this point. Once both databases were able to offer the same scope of coverage of public domain materials, these two services battled competitively through a principal focus on features that their services uniquely provide, rather than on the underlying raw data that is almost identical in its coverage.

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[286]   *See also The 1998 CIAA Hearing*, *supra* note 28, at 183 (statement of Tim Casey, Info. Tech. Ass'n of America (ITAA)).

[287]   *The 1999 CIAA Hearing*, *supra* note 23, at 286 (statement of Lynn Henderson, President, Doane Agric. Servs. Co.).

[288]   *See supra* Part V.A.1.(a).