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INTELLECTUAL PROPERTY RIGHTS IN DISSEMINATING DIGITAL GEOGRAPHIC DATA, PRODUCTS, AND SERVICES: CONFLICTS AND COMMONALTIES AMONG EUROPEAN UNION AND UNITED STATES APPROACHES

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ABSTRACT

Several areas of law influence the sharing of digital geographic information across national boundaries. Among them include intellectual property, privacy, freedom of information, free

trade, antitrust, and electronic contracting laws. Substantial differences exist between United States and European Union approaches to imposition of rights in each of these areas of the law. Even though clarity yet lacks in the application of U.S. and European laws to digital databases in networked environments due to rapidly changing technological conditions, this paper describes several specific differences and commonalties in the treatment of copyright and closely related rights in geographic data, products, and services.

1. INTRODUCTION

It is now generally accepted by academics, government, and the business community that information has become one of our most important resources for the generation of wealth and power. The battle over control of information systems and the content carried by them is in full fray yet the grab for intellectual property rights has been largely ignored by the press and, as a result, seemingly has gone unnoticed by the general public. While the press focuses on new offerings on the internet, the latest computer products, and issues such as "cyberporn", corporations around the world have been lobbying their governments for expansion and extension of intellectual property laws. As noted by a U.S. law professor in a recent editorial in the New York Times; "Governments are complying, granting monopolies over information and information products that make the monopolies of the 19th-century robber barons look like penny-ante operations" (Boyle, 1996). Particularly bothersome in the spatial data context is the "sell out" by government agencies to corporate "partners" of intellectual property rights in core data sets upon which value-added products and services might otherwise be built by a wide diversity of private sector innovators and distributed through a diversity of channels.

Spatial data sets are expensive to create and are now very easy to copy. We need intellectual property rights to protect them. Without some form of protection there would be little incentive in the private sector to create them and make them available to the public. Proponents for expanded protection argue that the more we protect intellectual property rights in data sets, software, and information products, the greater the incentive there is for innovators to create them and offer them up for use by all of us in society. However, there are limits to this theory in a practical world. Innovators need an adequate amount of raw materials from which to create and innovate. Data and information itself is this raw material. The market can't operate without an adequate flow of information. In granting data monopolies or establishing government practices that encourage the creation of private sector oligopolies, we reduce the public domain such that creators no longer have the raw materials to create. By imposing monopolistic conditions on parties that would like to add-value to raw data and sell the resulting product or by imposing monopolistic pricing, the raw materials become so burdened with the rights of others that the incentive for new innovativeness is lost and economies are stifled. Thus, society should protect intellectual property rights in privately created data sets but only within an overall context of enlarging the public domain of raw information materials such that innovations are encouraged and within a context of providing deference to new and expanding innovations over old innovations.

The appropriate role of the academic research community is to continually question the logic and validity of arguments presented by parties to important societal disputes. In evidencing the truth or falseness of claims, academics often strive to collect evidence on the ramifications, for instance, of following one information policy approach over another. Their work is typically reviewed by peers with an expectation of full disclosure of study and survey methods. Considered reflection and analysis is the expected norm. Further, when academics identify interests not represented in a social policy debate, they often take on the role of exposing and articulating the interests of those parties that may be disfranchised. Thus, our bias in the following is to take a citizen advocacy role. We feel that many of the long term interests of consumers and general members of society have not yet been heard clearly in the current debates over information policy choices.

We recognize that others as well come to the table with their own respective biases. Some of the arguments presented and positions taken in this article admittedly may not be in the short term economic best interests of some government agencies and private corporations. Academic researchers often are critical of "innovative progressive practices" by government agencies and industry and in turn academics are criticized as "lacking understanding of the realities of changing political and economic conditions." Academic researchers counter argue that government agencies and private industry have more than ample resources to adequately represent and promote their own positions and interests. In addition, in addressing the issue of protecting intellectual property rights in geographic datasets we believe there are substantial opportunities for reasonable compromises that support the primary policy goals of most stakeholders, including the general public, private businesses, and government agencies. For instance, we believe that rational models now exist in the U.S. for instituting geographic data dissemination policies in U.S. local governments that accommodate both open access to geographic data for local businesses and citizens and yet also meet the primary revenue generation objectives of local governments.(Onsrud et al., 1996). We believe similar compromises supporting most of the primary policy goals of most stakeholders may also be achieved relative to sharing and commercial activity in digital geographic data at an international level.

2. INTELLECTUAL PROPERTY RIGHTS IN GEOGRAPHIC INFORMATION

The use of copyright law to control the dissemination of government information dates back to British Copyright law which originated in the Statute of Anne, enacted in 1709 (Statute of Ann, 1978). Over the last three centuries, copyright has evolved from a state-enforced form of censorship into a constitutionally protected doctrine to "promote the progress of science and the useful arts." (Goldstein, 1994, 19). Over the same period, copyright law has had to adapt to the various forms of fixation used in the communication of expression -- from printing press, to photography, film, video, radio, and now databases.

One objective of copyright law is to encourage expression of ideas in tangible form so that the ideas become accessible to and can benefit the community at large. Copyright compensates creators of original expression as an incentive for them to continue to bring forth knowledge and information that others in the community might be able to exploit for social or commercial gain. The intent of copyright is to protect expression but not to protect ideas. The ideas in a copyrighted work can and should be used without compensation to the creator. However, those expressions imbued with originality by the author are protected. Differences among the copyright laws of various nations have resulted from a wide range of interpretations that nations have developed for the concept of originality.

2.1 Government Copyright

Copyright of government information is common throughout North American and Europe. The United States is one of the few industrialized countries which expressly forbids Federal agencies from imposing copyright against it citizens (with a few exceptions), thereby placing these information resources into the public domain. Most state and local governments in the U.S. have the option of imposing copyright in their public records if they choose to do so. In other countries copyright may be applied to all works of government. However, even in nations allowing broad copyright in national government datasets, there are obvious variations in the implementation and enforcement of copyright. For instance, the UK favors strong protection while France and Canada attempt to balance between the needs of protecting government works and the needs of citizens to access public information. Thus, in countries doing balancing, works of a regulatory or policy making character are often excluded from government copyright.

The conversion of public information to digital form makes government data more valuable and therefore raises the stakes in the information policy debate. The conversion from print to datasets has led many government departments around the world, including national mapping and statistical agencies, to assert their copyright, apparently to secure the potential revenues from data sales. Potential revenues from the sale of spatial datasets may be attractive incentives to government copyright holders, just as they would be to other holders of a valuable information asset. Due to their dominant power positions and fiscal incentives to do so, it is very likely that most government agencies will choose in their own best interests rather than in the interests of citizens generally in deciding whether to impose copyright and to what extent on the geographic datasets that the agency has created. Thus such issues should be addressed by public policy makers and elected officials. The challenge for public policy makers is to determine the extent to which copyright or other intellectual property controls should be utilized by government agencies in order to generate revenues and to determine the economic and social costs to the public interest and commercial innovation for each of the policy routes that might be chosen.

2.2 Copyright of Electronic Datasets in the U.S. after Feist

Electronic datasets, also referred to as compilations, are protected under the 1976 U.S. Copyright Act. The Act defines compilations as the "collection and assembling of pre-existing materials or data that are selected, coordinated, or arranged in such a way that the resulting work constitutes an original work of authorship" (17 U.S.C., Sec. 101). The level of originality required in order for a work to be protected under the act is very low in the U.S. However, protection extends only to the originality aspects of the work. Thus for geographic datasets, creativity aspects of their selection or arrangement are entitled to copyright protection whereas their factual content is not.

U.S. copyright law represents a careful attempt at balancing the rights of creators with those of the users. Its central purpose is to stimulate learning, research, education, and the creation of new works of art and science. As Justice O'Conner wrote for the U.S. Supreme Court:

> the primary objective of copyright is not to reward authors, but to promote science and useful arts. To this end, copyright assures authors the right to their original expression, but encourages others to build freely upon the ideas and information conveyed by a work . . . This result is neither unfair nor unfortunate. It is the means by which copyright advances the progress of science and art (Feist Publications v. Rural Telephone Service Co., 1991)

Since the production of information resources is the fundamental goal of copyright laws it is necessary to better understand how much data government agencies and publication offices are willing to make available in electronic format. If intellectual property is too lax, there may be inadequate incentives to produce additional information works. However, if protection is too rigid, it may impede the free flow and fair use of information (Varian 1995). In addition, the rights of copyright owners must be broad enough to provide a fair return on their work.

The 1991 Supreme Court ruling, *Feist Publications v. Rural Telephone Service Co.*, held that white page telephone directories were not copyrightable since these compilations were insufficiently original to warrant protection. This is relevant to spatial databases, since a GIS dataset is more akin to a directory than it is to a "pictorial, graphic or sculptural work" (17 U.S.C.A. § 101, West Suppl. 1992). Moreover, GIS datasets are unique in that a database management system (DBMS) allows the user to easily separate the factual content from the arrangement without infringing copyright. This was previously far more difficult with hardcopy maps.

The *Feist* decision demonstrated that white page telephone directories were not sufficiently original to warrant protection. The underlying meaning of the *Feist* ruling is that a compilation, such as a directory or a factual database, to be protected by copyright, must be a product of a

minimally creative selection, coordination, or arrangement process, rather than mere effort. A decision from the Southern District of Texas, regarding copyright protection for parcel maps concluded that "maps express the only pictorial presentation that could result from a correct interpretation of the legal descriptions and other factual information relied upon by the plaintiffs in producing the maps (Mason v. Montgomery Data Inc., 1991)" The consequence of this district court decision was that creative expression and selection anywhere on the maps was protected. However, the factual information itself was not protected. If one considers a statistical table or dataset of coordinates and features, copyright protects the arrangement and labeling of columns and variables, but not the numbers or statistical values represented.

Nevertheless, the courts are likely to be sensitive to the livelihood of dataset creators whose *competitors* pirate a copyrighted dataset and sell it for profit while providing little or no enhancements. Hence, the use of misappropriation arguments will be relevant in cases of blatant dataset piracy. However, if a competitor gains access to the raw factual data and significantly enhances this data by combining it with other data or improving on the quality, the original dataset creator may be hard pressed to win a copyright infringement claim (Raskind, 1991, 347). The importance of the *Feist* decision is that it has confirmed a U.S. policy of stimulating competition and innovation in information markets. *Feist* appears to introduce a competitive thrust into copyright law that will require dataset creators to continually enhance their product in order to stay one step ahead of their competition.

2.3 Copyright of Geographic Data

Even though a spatial database might cost hundreds of thousands of dollars to compile, it is typically far more difficult to legally support copyright in a GIS database than it is to support copyright in, for instance, a novel. One reason for this is that spatial data is largely factual in nature and "facts" are not subject to copyright under the Berne Convention (Berne, 1986). Facts, algorithms, physical truths, and ideas exist for everyone's use. It is difficult to argue that the outline of a building, the bounds of a land parcel, or a line of constant elevation on a map (i.e. contour line) are expressions of originality. Any other person or sensor attempting to represent these physical facts would have little choice but to do so in much the same way (Kern River Gas Transmission Corp. v. Coastal Corporation, 1990). To represent the features by other than points, lines, polygons, or image bits would make the representation non-standard, greatly decrease the value to others, and make the data useless or cumbersome for computer processing (Onsrud and Reis, 1995).

The "merger doctrine" is another well established legal principle under U.S. copyright law. Under the doctrine, copyright protection will not be granted if there is only one or a small number of ways to express an idea. Thus, by example, even though a building outline dataset might reach the required "modicum of originality" in order to fall within the realm of copyright protection, copyright protection should be denied because the expression is one with the facts. The fact or idea of how far a building extends and the expression of that fact or idea are merged. The expression of the building limit as a line is largely inseparable from the fact or idea of the limit because expressing the limit in any other form than a line would be highly impractical in a real world. The argument might be made by some that a building line expressed on a map is an author's "opinion" of where the limits of a building are subject to some degree of error rather than an expression of "factual location" subject to some degree of error. However, if many mappers independently collecting the same building limits would arrive at the same expression for the limits of the building within a reasonable degree of certainty for most potential uses of the information, one may only logically surmise in a practical world that the information provided is more in the nature of "factual information" than "opinion." Thus, clearly a solid line representation of a building limit fully meets the merger doctrine test. Similarly, a line of constant elevation above a standard and widely used

datum collected and expressed at a standard and widely used mapping scale exhibiting a reasonable degree of accuracy for many practical purposes would also appear to meet the merger doctrine test. The intent of the merger doctrine test is to help ensure that ideas and standard factual data are kept within the public domain for all others in society to productively use and build upon. Although the doctrine is well established under U.S. law, it is not as evident under the copyright laws of European nations (Samuelson, 1996).

In the U.S., if one is allowed to gather data through indirect copying such as recompiling the factual listings in a phone book from original data or taking aerial photos of an area in order to create outlines of buildings already shown on someone else's map, then one is not prevented by copyright from copying the facts from an existing source (Feist Publications v. Rural Telephone Service Co., 1991). However, there is still the potential that other laws such as misappropriation or unfair competition laws might be imposed against a person that takes the data from another individuals compilation rather than gathering the facts independently.

Even if a copyright claimant argues the existence of originality in the selection, coordination, or arrangement of a data compilation, the typical GIS user is primarily interested in the data itself and not in the originality aspects of the data compilation. They wish to use segments of the factual data to do their own original work. Thus if one extracts only factual information from a geographic data set to create a new arrangement, it is difficult to argue that the individual has copied another's original expression. Under U.S. law, at least, *Feist* suggests that completeness or comprehensiveness in the collection of a set of facts (i.e. all telephone listings in a community) makes the collection quite ordinary rather than "original" and being first to compile a set of facts fails by itself to establish a copyright (i.e. rejection of the "sweat of the brow" copyright theory) (ibid.). Dataset ownership interests are further complicated in GIS environments because much of the data currently being compiled in them is being copied from existing paper maps; some of which are obviously in the public domain but many others of which involve potential preexisting copyright interests.

The test used in the U.S. to determine whether newly developed software has violated the copyright of existing software is set forth in Computer Associates v. Altai (Samuelson, 1996). If this test was similarly applied to spatial datasets it would first require identifying unprotectable elements of a dataset. These elements would include factual information but would also include data expressions dictated by efficiency considerations or by external considerations such as making the data set compatible with other data sets or software. These elements are not protected by copyright and are filtered out. This step of the Altai test suggests that the more standardized a dataset is the less subject to copyright it should be. What remains after the filtering process are the "golden nuggets of expression." It is these "golden nuggets" that would then be compared to the potentially infringing dataset to determine whether those aspects of expression are present and, if so, whether they were illicitly copied. Copyright laws of the European nations tend to brush a broader stroke in protecting software. If found to be protected by copyright, that protection typically extends to greater than the "golden nuggets of expression." At the current time there is no indication that the Altai test will be formally applied by the courts to datasets in the U.S. but the principles supported by the test seem to comport with current copyright law as applied to datasets in the U.S.

Because the Berne Convention and other international copyright conventions extend only to original works and not to "facts", several legislative proposals have been proposed within the European Union in regard to protecting the "neighboring rights" of creators of works. The basis of the underlying theory is similar to the familiar "sweat of the brow" theory recently rejected by the Supreme Court in the U.S. Other theories being

considered include "moral rights," "unfair competition," and "sui generis protection." (CEC, 1995c).

2.4 Contract Law as Applied to GIS Datasets

Given the limitations of copyright law for protecting spatial datasets, organizations that intend to maintain a proprietary interest in their information resources are increasingly turning to contract law and the use of signed license agreements to control the use and duplication of datasets.

A license is a legally binding contract whereby the terms between a database supplier and user can be agreed upon and enforced through the principles of contract law. Licenses define the rights and privileges of the parties more specifically than the copyright statute would alone. These agreements generally determine limitations on duplication, resale and derivative products. Penalties for violation of the contract terms are defined before they occur, thus reducing the possibility of litigation to achieve enforcement. The restrictions elaborated in the contract typically limit uses, users, sharing arrangements and downstream dissemination of the data. Furthermore, licensing copyrighted works allows authors to receive economic gain at privately negotiated prices (Goldstein, 1977). The wording in contracts or licenses often is also used to decrease liability exposure. Such language typically spells out the data suppliers efforts to notify the user of the limitations of the database as well as giving notice of the remedies available to dissatisfied customers or those that are damaged through dependence on the data.

Licensing agreements are quickly becoming the preferred means of achieving control over the use and reproduction of spatial datasets by suppliers. Contract law protects dataset suppliers from misuse and copying of the arrangement *and* the factual content of a dataset. These agreements provide data suppliers with a mechanism to protect the contents of factual datasets -- an act not permitted under most copyright laws. A drawback of licenses from the user's perspective is that many contractual licenses now in use for the acquisition of works in digital form fail to take into account legitimate uses under the "fair use" exception to the copyright law (Litman, 1995). A drawback of contracts and licenses from the data vendor's perspective is that they may provide little protection against third parties that gain access to the data but have no contractual relation with the supplier. Unfair appropriation laws may be the only resort under such circumstances and may have little applicability in many instances.

The motivation for data vendors to combine copyright with contractual licenses is understandable: database development is expensive, copying is easy, and data suppliers wish to protect their investment and assure revenues. However, these restrictions can have serious implications on the general user community if they are imposed by government GIS agencies. At issue is the fact that suppliers, particularly in the public sector, remove the *access to government information principle* from the realm of public policy and reinterpret it from the perspective of business interests and principles. If not applied fairly, licenses imposed by public agencies can potentially restrict the resale or value-added activities of commercial and non-profit organizations. If users are forced to sign-away rights to public data which were otherwise available under copyright law, the imposition of such language may raise "lack of consideration" or "lack of just compensation" issues under contract law principles. If found lacking, the contract may be invalid. Furthermore, licenses and contracts tend to reinforce monopolistic tendencies of government information suppliers. This results from a captured market and the elimination of alternative information sources due to the up-front sunk costs at public expense involved in government mapping activities.

3. UNITED STATES FEDERAL GOVERNMENT COPYRIGHT LAW SETTING

United States Federal policies have been developed to address the public need for information (McClure et. al., 1989; Hernon and McClure 1993). U.S. public information principles are based upon an attempt to guarantee broad access to information as a precondition to economic and

political opportunity. United States policies have been derived from four broad motives: (1) to encourage public education and enlightenment; (2) to protect intellectual property rights; (3) to assist economic development; and (4) to protect national security (Ballard et al., 1989, 86). The intellectual property clause of the Constitution furthers these goals by requiring federally-funded science to contribute to the public good (McClure et. al., 1989, 152). United States principles of open government are further enhanced by Section 105 of the U.S. Copyright Act which precludes copyright protection for works of the federal government. The fundamental reason for not allowing Federal agencies from copyrighting public information resources was the fundamental belief that *government copyright* is the antithesis of *open access* whereby an informed citizenry can check official abuses. However, other economic values are at work, primarily that individuals ought to be able to derive benefit from public goods (such as public information), and that education (increased access to information) is inherently a good in its own right. (U.S. Congress, 1986).

3.1. Freedom of Information Act (FOIA)

The US Freedom of Information Act (FOIA) was passed in 1966, and strengthened in 1974, followed in 1976 by the Sunshine Act. Until the enactment of FOIA there were no statutory mandates compelling government to release information to the public (Branscomb, 1994, 167). The US federal government recognized the importance of informing its citizens by eliminating constraints to its access (price, intellectual property restrictions, etc.) through the enactment of the Freedom of Information Act (FOIA) in 1986 (5 U.S.C. 552, 1986). The Supreme Court has observed that "[t]he basic purpose of FOIA is to ensure an informed citizenry, vital to the functioning of a democratic society, needed to check against corruption and to hold the governors accountable to the governed" (NLRB v. Robbins Tire & Co., 1978). Hence, the FOIA is viewed as an adjunct to the constitutional elements of a democratic system (Cooper 1986, 622). Although FOIA statute does not specifically identify datasets as a government record, the federal courts have consistently held that computer records are public records for the purposes of FOIA (Yeager v. Drug Enforcement Administration, 1982).

3.2 Copyright and Related Administrative Law as Applied to Federal Agencies

i. Government Copyright

The laws of the United States provide that copyright protection is not available for any works of the Federal government (17USC § 104, 1988). Thus, U.S. government public agency records are regarded as being in the public domain. The Federal government does reserve the right to enforce copyright of its public records against foreign users if it chooses to do so. Within the United States copyright may be imposed by state and local governments.

ii. Paperwork Reduction Act

The U.S. Office of Management and Budget is authorized to set Federal information policy through the Paperwork Reduction Act and Circular A-130. The Paperwork Reduction Act (PRA) of 1995 is the most comprehensive of the statutes pertaining to the dissemination of Federal information resources (Perritt, 1995). The act expressly mentions electronic information collection and dissemination techniques and obligates the Director of the Office of Management and Budget (OMB) to develop government-wide policies for coordinating data acquisition requests, data use, and information dissemination policies. It has been designed to complement the Freedom of Information Act by having government actively disseminating its information resources, rather than relying on cumbersome administrative FOIA. The use of an electronic Government Information Locator Service (GILS) as a central computer interface and retrieval system is central to its dissemination objectives (Office of the President, 1994). The purpose of GILS is to use the nation's emerging national information infrastructure to help the public and agencies locate and access information throughout the U.S. Government (ibid.).

iii. OMB Circular A-130

The Office of Management and Budget (OMB), directs federal government information dissemination policy through OMB Circular A-130 (OMB, 1992). This directive establishes the administrative rules and guidelines governing the dissemination of all federal government information (17 USC § 102). The most recent update of the Circular explicitly recommends that Federal information resources be disseminated at the marginal cost of dissemination in order to encourage access and use through a diversity of channels. OMB policy clarifies the unique character of government information as a public good, which is statutorily exempted from copyright protection and is required to be disclosed upon request under the Freedom of Information Act.

The 1992 version of the of OMB Circular A-130 stipulates:

> In order to minimize the total cost and maximize the usefulness of government information, the expected public and private benefits derived from government information should exceed the public and private costs of the information, recognizing that the benefits to be derived from government information may not always be quantifiable. . . . [U]ser charges higher than the cost of dissemination may be a barrier to public access. Given that the government has already incurred the costs of creating and processing the information for government purposes, the economic benefit to society is maximized when government information is publicly disseminated at the cost of dissemination ... However, where agencies provide custom tailored information services to specific individuals or groups, full cost-recovery is appropriate (OMB, 1992).

Circular A-130 and the Paperwork Reduction Act share two fundamental objectives:

> 1) To improve federal agency electronic information management.
> 2) To ensure that public access provisions are built into the development of Federal projects and programs.

The U.S. Copyright Act in combination with FOIA, Circular A-130 and the Paperwork Reduction Act have evolved over the last two decades to complement each other to ensure that government records, information and databases are more readily available to the public and private sectors in a manner which meets national priorities.

iv. National Spatial Data Infrastructure Initiative

In 1994, recognizing the importance of federal action in coordinating the complex milieu of federal information handling activities, President Clinton signed an Executive Order directing all Federal agencies to contribute to the development of the National Spatial Data Infrastructure (NSDI) (Office of the President, 1994). This Presidential Executive Order lays out key activities that federal agencies must conduct in conjunction with State and local governments, academia and the private sector to ensure the evolution and growth of the NSDI. These key activities illustrate that both the government and the private sector must become major players, and in some cases partners, if government is to take economic advantage of its technical information resources. Indeed, in the areas of its primary U.S. technological leadership -- defense, space, agriculture, software and environmental technologies, the record is clearly one of an integrated information management capacity in which the roles and responsibilities of all sectors are closely intertwined.

Furthermore, in 1990, a U.S. Congressional report noted that in order to maintain a leadership position, effective government information policies will be needed to enhance a nation's technical innovation and global competitiveness (US Congress, 1990). Likewise, the President of the National Academy of Public Administration recently noted that,

> [i]nformation is pivotal to the vitality and productivity of government services and the nation's economic competitiveness. At issue is whether we can use information technology effectively to empower government, the private sector, and citizens alike. The complexity of today's world demands that the public and private sectors not only learn to master this tool, but also work cooperatively to maximize the national benefits (NAPA, 1993).

It appears that U.S. policy makers are now beginning to recognize the importance and economic benefits of promoting a robust spatial information infrastructure through the application of *information policy mechanisms*, as opposed to direct *subsidies*. However, the question remains: What is the appropriate information policy model that will propel the creation of a national spatial data infrastructure into the next millennium?

4. EUROPEAN UNION COPYRIGHT SETTING

4.1 Freedom of Access to Environmental Information

With the formation of the European Union (EU) member states are increasingly being bound by legislation and decision making made by the European Union (EU). The EU adopted Directive on the Freedom of Access to Information on the Environment in June 1990. This directive requires member states to provide free access to information on the environment (Hallo and Roderick, 1995). The directive guarantees an individual the right to information about the environment in the possession of public authorities. Information includes existing data collected or prepared by such authorities and which are contained in written documents, data banks or visual recordings (ibid.). Although this Directive is intended to make governments more open in their provision of environmental registers, the requirement to provide maps, digital map products or earth observation data is uncertain.

4.2 European Union Copyright

The differences and anomalies of copyright law that exist in the European Union member countries have prompted the EU to establish a minimum set of standards for copyright law which would harmonize protection throughout the European Union member states. As a result, the EU has recently adopted an EU Directive for the Legal Protection of Databases (CEC, 1996).

The Commission feels that a consistent, secure and stable legal regime is necessary in the Community so that database creators and operators can compete on equal terms with their leading rivals in the world information market. The nationally disparate terms of copyright protection can be a barrier to the free movement of goods--a cornerstone of the EU. The EU's two-tier approach provides full copyright protection to databases meeting the necessary originality criteria related to the selection or arrangement of a database; and an additional 'neighboring right' on the factual contents of the database. The proposed Directive would provide protection for the database *arrangement* for seventy years. In addition, the *contents* of factual compilations (i.e., those ineligible for copyright due to the lack of creative expression) would be protected for ten years against unfair copying. The stated intent of the directive is to serve as a possible basis for international accommodation of new information products currently ineligible for traditional copyright protection (ibid.). While most EC Directives have had a primary goal of reconciling existing laws across nations, the proposed EC Directive on the Legal Protection of Databases would broaden the protection of factual compilations which are not eligible for protection under traditional copyright or other existing laws.

The Community's proposal on database protection intends to provide legal protection for these factual or low-originality compilations for up to ten years. The originally proposed Directive addressed impediments to accessing databases arising from monopoly suppliers. It recommended that *voluntary* license agreements be used to ensure access to proprietary information on fair and non-discriminatory terms. This compulsory licensing requirement would have required compulsory licenses on all monopoly suppliers of government information in order

to encourage value-added commercial exploitation and competition. However, the compulsory licensing requirement was dropped from the final version. As a result, the final directive appears to overprotect database owners without balancing the need to provide compulsory licenses or provide fair use rights to users that wish to acquire and use data from exclusive suppliers.

4.3 Administrative Guidelines

In light of the growing use of copyright by government agencies, the CEC *Guidelines for Improving the Synergy Between the Public and Private Sectors in the Information Market* stresses that European member states' efforts to copyright their information resources may conflict with stated EU principles associated with a right of access to government information (CEC, 1993). The guidelines are the outcome of an EU project that is currently examining how European member states assert principles associated with a general right of access to government information. It is being undertaken by the European Union's DG XIII Legal Advisory Board (LAB). Preliminary findings from this project suggest that greater openness to government information is necessary to encourage the synergy between the public and private sectors needed to establish a Community information market and to reduce possible distortions of competition in the European market for public sector information (Burkert, 1992).

The EU guidelines emphasize that such openness is necessary to encourage synergy between the public and private sectors in establishing a Community information market and to reduce possible distortions of competition in the information market for public sector information. The so-called *CEC Synergy Study* encourages governments to use their discretion to minimize public-sector copyright. This report goes on to stress that the public sector should not indulge in discriminatory pricing or dissemination practices that would affect fair competition and be contrary to EU Competition Law. Given the importance of government copyright on the development of a global spatial data infrastructure, better understanding of the impacts of these forms of control on public access and industry development is necessary.

Since the EU *Synergy* guidelines have no sanctions attached, they have not been given attention by the member states (Burkert, 1992; Beasley, 1995). However, the important role of government information in the EU, coupled with the emerging European Information Infrastructure policy efforts, discussed below, are likely to place national information policies under greater scrutiny (CEC, 1995a; CEC, 1995b).

The European Union (EU), has embarked on a number of strategic initiatives promoting the development of Community-wide geographic information markets. The EU efforts are driven less by ideology and more by the pragmatic goal of exploiting government information resources to stimulate the public and private information sectors. A principle goals of this activity is to stimulate innovation in the commercial information sector by making government information more readily available and by reducing the impediments to access (PSI, 1995). Although a political component is inherent in the EU proposals, the objectives are closely aligned to industrial policy and strengthening the competitiveness of European information industries.

The EU initiatives are attempting to develop policies of access which exploit public sector information, link sources of European public sector information, and make better use of content resources in the public sector. Specific programs include:

- ***INFO2000***: A Community program to stimulate the development of a European multi-media content industry and to encourage the use of multimedia content in the emerging information society. One of its principle action lines is to better exploit Europe's public sector information in order to stimulate interconnection throughout Europe and to bolster the competitiveness of the European information industry (CEC, 1995a).

• ***GI2000***: Towards a European Geographic Information Infrastructure. This is a European Community policy document intended to raise the level of awareness regarding the development of a European Geographic Information Infrastructure (CEC, 1995b). The key issue addressed in this document is to provide a "broad, readily available high quality platform of base data within a uniform infrastructure across Europe so that every market niche is open to every entrepreneur, so that existing data can be combined to provide valuable information..." (ibid.).

A motivation for these EU efforts, and similar member state investigations, is to identify dissemination policies which actively promote the greatest openness and innovation in the public and private information sectors. Likewise, it becomes important to identify restrictive policies that may result in reduced opportunities for the successful transfer of raw datasets to commercial data vendors and researchers.

The EU has become much more aggressive in promoting better access and efficient utilization of electronic information. The EU is equally devoted to enhancing the synergy between the public and private sectors (Bruïne, 1995). For example, three strategic areas identified by a recent INFO2000 initiative are: (1) exploiting the use of government information; (2) improving access to non-EC databases; and (3) the development of the European GIS industry (CEC, 1995a). In addition there is the explicit objective of strengthening the competitiveness of the European information industry (ibid.). Perhaps the greatest impediment to utilizing publicly-financed information resources is the controversy over ownership of government resources. The competitiveness of the European information industry, or more specifically, the ability of European geographic information industry to compete in a global setting, will be affected by the issue of how intellectual property rights are applied to public information resources.

5. SUMMARY

Comparisons between the European Union and/or European member states and the U.S. are bound to be influenced by the differing legal, political, economic and cultural factors. For example, "data access in the US is determined within an ethos of freedom of information whereas in Europe the focus is on data protection and confidentiality" (Lievesley and Masser, 1993). Despite these differences, European national information policies do share some characteristics with the US. As noted by legal scholar Henry Perritt, "the policy and legal questions on both sides of the Atlantic are remarkably similar. The principle legal questions are whether or not citizens and information resellers have a right of access to public information and, conversely, whether or not the government can block such access by asserting copyright" (Perritt, 1994, 7).

The U.S. does not impose copyright against its citizens in the use of federally produced spatial data, whereas most other nations do. In addition, "neighboring rights" protection is viewed by many in the U.S. as primarily benefiting capital intensive corporations or large agencies as opposed to benefiting small businesses or individual authors. Therefore, this concept is not viewed with the same favor currently seen in European nations. These differences are substantial and are likely to be stumbling blocks in the establishment of an international electronic marketplace for spatial data.

Other questions as well must be addressed as national governments review their information policies. Should the objectives of dissemination activities be to promote widespread use and access to government information through low cost access at the cost of dissemination or should the objective be to generate revenues necessary to fund department activities? Should policy be directed to have the effect of centralizing information suppliers or of increasing the diversity of channels and products? Governments must reconcile these sometimes conflicting objectives in a manner which meets the changing information requirements of an information society.

Although there are increasing attempts by vested interests in the commercial and government sectors in the U.S. to move towards more restrictive control over intellectual property rights generally, we predict growing resistance to such attempts by legal scholars, economists, the information industry, the library community, and citizen advocacy groups. There appears to be widespread and growing belief in the U.S. that the general U.S. approach to the treatment of copyright seems more appropriate in the long run for spurring technological innovation and economic vitality for an economy than the alternatives offered by the European community to date.

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5 U.S.C. § 552 (1986)

17 U.S.C. § 101 - 104