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The Digital Dilemma; Intellectual Property in the Information Age

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This **Special Report of *Against the Grain*** offers five perspectives about the recent and important **National Academy of Sciences** study, *The Digital Dilemma*. For close to two years, a diverse group of experts pondered the societal challenges posed by the development and rapid evolution of the Internet, to create a thoughtful analysis of the issues and some possible approaches to them. The pieces herein include a view from the **NAS** staff who organized the study (**Alan Inouye**); from three members (**Karen Hunter**, a publisher; **Clifford Lynch**, a technology specialist and educator; and **Bernard Sorkin**, an attorney for the publishing industry) as well as from one non-member (**Sarah Sully**, an attorney in private practice).

With the twin revolutions embodied in the microcomputer and the In-

ternet, information has begun to move among people more rapidly than ever. The ease of copying undermines old rules and practices designed to turn words into commodities and to transform intellect into property. All those who create, produce, distribute, and read information in electronic form are caught by the pressures of old and new, seeking freedom and movement for intellect, but remembering also a mission to guard and transmit, all within a framework of laws. *The Digital Dilemma* was commissioned by the National Science Foundation and carried out by the National Research Council of the National Academy of Science and comes with suitably blue-ribbon credentials. It captures the heart of the dilemma—the need to foster movement and dissemination of information and the need to preserve and develop means of control and reward. It must be a good report, because readers have differed sharply over

whether it is too pro-user (and pro-library) or whether it strikes a Solomonic balance between the communities of interests.

At its core is the complex and ironic position of intellectual property law, seeing restraint and control as the means of facilitating dissemination and freedom. No debates have been resolved, but the issues have rarely been outlined with such clarity and absence of polemic and rancor. The volume is an excellent handbook for faculty, librarians, and administrations seeking to understand the choices they will need to make as universities become both producers and consumers of new kinds of intellectual property in a new kind of information economy.

We hope that this array of articles stimulates your thinking and enriches your perspectives about copyright in this exciting digital age. 🌱

Origins of The Digital Dilemma

by **Alan S. Inouye**¹ (Computer Science and Telecommunications Board, The National Academies) <ainouye@nas.edu>

The revolution in digital information and digital technologies continues apace. Commonplace activities such as buying a book, learning the day's news, or obtaining information from the federal government are carried out increasingly on the World Wide Web. Traditional media such as newspapers converted to digital form can be made more widely available with greatly augmented capabilities. But the digital revolution also enables new ways for providing information services. As an example, consider auction Websites, which enable auctions on a national scale for everyone and everything, as compared to conventional auctions that are localized events for specialized items.

Three trends underlie the digital revolution. First is the rapid transition from analog to digital information, which causes information to be more flexible—digital information is inherently easy to copy or modify, and digital copies are perfect, unlike analog copies (e.g., photocopies). The proliferation of digital networks makes it possible for the general public to transmit inexpensively and nearly instan-

taneously large quantities of information to many people at the touch of a button. And finally, the rise of the Web makes it possible for anyone to become a publisher with minimal capital outlay.

These dramatically improved digital capabilities, however, raise profound and important questions for the regime of intellectual property. The new capabilities that allow information to be distributed rapidly, inexpensively, easily, and perfectly also make it easy for people to violate (whether intentionally or inadvertently) the rights of intellectual property owners. The physical barriers to widespread copying in the analog world are breaking down; these barriers are already overcome for some kinds of information such as digitized songs (by contrast, consider the physical and practical limits to the wide distribution of copies of cassette tapes), and may well be over-



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come in the next few years for others (e.g., digitized movies). As a result, many of the policies and practices that have evolved in the world of physical artifacts are not likely to work well in the digital environment.

Recognizing the digital revolution's likely impact on the regime of intellectual property, the former **Federal Networking Council Advisory Committee (FNCAC)**² recommended that the **Computer Science and Telecommunications Board (CSTB)** of the **National Academies** be asked to undertake a project in this area. The **National Science Foundation**, which then administered the FNCAC, funded a study in the fall of 1997 and CSTB impaneled the **Committee on Intellectual Property Rights** and the **Emerging Information Infrastructure** at the end of 1997, which began its deliberations in early 1998. The committee's charge was to assess issues and derive research topics and policy recommendations related to the nature, evolution, and use of the Internet and other networks, and to the generation, distribution and protection of content accessed through networks. Although recognizing the importance of developments and practices abroad, the committee concluded early in its deliberations that it could not address both domestic and international issues and implications in great depth and therefore focused its efforts on the United States. The committee further concluded that the primary component of intellectual property that it would emphasize is copyright, because it protects a large variety of the intellectual property frequently encountered by the public and has the highest visibility in the debates over intellectual property. The committee's report, *The Digital Dilemma*, was released to the public in November 1999.³

The Study Committee Process

The CSTB convenes national panels of experts to conduct its studies. For the study that led to *The Digital Dilemma*, a committee of 18 experts was appointed, representing a wide range of expertise in networks, computer security, digital libraries, economics and public policy, public and academic libraries, intellectual property law, publishing, and the entertainment, software, and telecommunications industries. Nominations to serve on CSTB committees are solicited from a wide range of individuals and groups within the **National Academies** as well as from outside groups and experts. Nominees to serve on committees are reviewed and approved by the **National Academies** and are subject to a 20-day public comment period before being fully approved.

A key goal of the committee appointment process is to ensure that the relevant perspectives are appropriately represented on the committee. For this study, process was immensely important because of the high eco-

nomical and ideological stakes involved; the model for intellectual property is central to the operation of major industries such as publishing, software, and entertainment, and of important cultural and educational institutions such as libraries, universities, and archives. Thus, a careful balancing of perspectives was incorporated in the appointment of committee members. This balancing extends to other characteristics such as geography and the mix between industry, academia, and other pertinent groups.⁴

The collection of information dominates the first part of a study. For this study, three 2-day meetings were held to hear testimony from experts on the committee and from invited experts. Committee members and CSTB staff were also engaged in reviews and assessments of the published literature and in monitoring developments in Congress, industry, and user communities. Because of the contentious nature of intellectual property issues, every effort was made to ensure that a broad range of perspectives was represented in the solicitation of briefings and other inputs to committee meetings and in the materials distributed to the study committee.

Committee deliberations constitute the second part of a study. Debates took place on the numerous issues addressed in *The Digital Dilemma*, both during three additional 2-day meetings and through vigorous discussions by electronic mail. A draft report was written and sent out for feedback from 29 peer reviewers, who were carefully selected to represent the diverse range of expertise, perspectives, and stakeholders addressed by the report. The comments from the peer reviewers were considered and debated by the committee, resulting in major revisions to the text. Representatives of the **National Academies** review the final manuscript to ensure that reasonable revisions were completed in response to comments from the reviewers. The manuscript is then edited and prepared for publication by **National Academy Press**.

Characterizing The Digital Dilemma

The task of intellectual property protection has always been difficult, attempting as it does to achieve a finely tuned balance: providing authors and publishers enough control over their work that they are motivated to create and disseminate, while seeking to limit

that control so that society as a whole benefits from access to that work. The first U.S. copyright statute was enacted in 1793 and protected only maps, charts, and books. Yet it has been adapted successfully over the past 200 years, in part by expanding both the set of exclusive rights conferred by copyright and the scope of the subject matter and by qualifying those rights with exceptions such as the fair use doctrine. Indeed, the advent of innovations such as photocopiers and VCRs caused adaptations in copyright law, but the basic framework remained intact. Might not the copyright framework once again adapt successfully in the case of the digital revolution?

Because the digital revolution is ongoing, we cannot answer this question definitively. However, as noted above, the digital revolution does place considerable stress on the current copyright framework. The committee thus found benefits in looking beyond the traditional model of protecting intellectual property that relies on copyright law, enforcement, and natural physical barriers to infringement. Some of these reasons are outlined below and will be discussed in greater detail in the other articles in this **Special Report** by **Bernard Sorkin**, **Karen Hunter**, **Sarah Sully** and **Clifford Lynch**.

Individual behavior matters more than ever before. In the analog world, the actions of an individual are localized and are not likely to affect the market for an information product (except for those engaged in systematic illegal commercial copying). The widespread availability of digital net-

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Appendix Members of the Study Committee

Randall Davis, Massachusetts Institute of Technology (Chair)
Shelton Alexander, Pennsylvania State University
Joey Anuff, Wired Ventures
Howard Besser, University of California, Los Angeles
Scott Bradner, Harvard University
Joel Feigenbaum, AT&T Labs-Research
Henry Gladney, IBM Almaden Research Center
Karen Hunter, Elsevier Science
Clifford Lynch, Coalition for Networked Information
Christopher Murray, O'Melveny & Myers LLP
Roger Noll, Stanford University
David Reed, Cable Television Laboratories
James N. Rosse, Freedom Communications (retired)
Pamela Samuelson, University of California, Berkeley
Stuart Shieber, Harvard University
Bernard Sorkin, Time Warner
Gary E. Strong, Queens Borough Public Library
Jonathan Tasini, National Writers Union/UAW Local 1981

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right law (a point I did get into the report). I understand the concerns and, for that reason, did not fight some of the points made as hard as perhaps I should have. But it is clear that many of my publishing colleagues are not comfortable with the level of attack on licenses made in the report.

2 Education on copyright. This was an issue that arose from several of the people who made presentations to the committee. Copyright is complicated, the public generally misunderstands it and overstates what they “have a right” to do. Something has to happen to correct that process and part of that something is copyright education. On that we all agreed—and it didn’t matter whether you were an advocate for the user or the IP owner. Where we could not agree (and there were no “sides”) was on how that could most effectively be accomplished. It is easy to be cynical and say nothing will work. Even the most dedicated people on this point had trouble reaching a compromise.

3 Anticircumvention. The report goes on in great detail (primarily in an appendix) about changes that should be made in the **Digital Millennium Copyright Act** on issues related to what is known as “anticircumvention.” This means hacking through security systems: under what cir-

cumstances can you do this? I believe this discussion is out of place in the report and I argued to have it at least shortened. I felt it dealt with specific legislation (which we had agreed at the start we would not do) and was not in proportion with the rest of the report. However, as certain members of the committee had this as high priority (in relation to cryptographic research and to fair use), it stayed in.

4 Digital archiving. This section probably comes closest to a consensus statement as any part of the report. This is an issue that is important to me and occupies a great deal of my current activities and I think the text and the recommendations here deserve attention. At one point in the discussions, it looked as if there would be a recommendation for legislation or other action to sanction what I called “intellectual imminent domain”—the unilateral taking of IP when you think it might otherwise not be archived. There are sufficient problems with such an approach that cooler heads prevailed. But that is not to say that at some point some type of unilateral action may not be warranted to preserve things “for the public good.” (See, even I can be won over.)

5 Business models. Of the many issues in the report, this is the last one I want to comment on. The report advocates out-of-the-box thinking about various business models that reduce the reli-

ance on copyright, substituting other marketing or strategic approaches (such as giving away part of the product). There is nothing wrong with such approaches, and they may well work for some products or services in some circumstances. But I think we fool ourselves if we think that copyright will not remain and need to remain at the foundation of the information business. At some point, regardless of the new business model you employ, there has to be some compensation for the value added at various stages in the information process. Copyright lays the foundation for that compensation.

Finally, I can’t leave this topic without credit to two people. As with probably most committees, some people worked harder than others. Enormous credit has to go to **Randy Davis**, the committee chair, and **Alan Inouye**, the NRC program officer shepherding our committee, for shaping the final report. They worked extremely hard to make a coherent whole out of many disparate pieces.

Now, it is off into the NRC sunset, with largely good memories (holding the baby drives out the pain of childbirth). It was a fascinating process. I got to know a number of really good people that I would not otherwise have encountered and they stimulated my brain cells. You can’t ask for much more than that. 🌱

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works makes it easy for any individual to become a large-scale copyright infringer. Thus, copyright education and other efforts to shape individual behavior become much more important.

The judicious selection of a business model can reduce or eliminate the need to protect intellectual property or to enforce copyright laws. The basic premise of using business models (which are often implemented through licenses) is to “make it easier to buy than to steal.” One example is the use of extreme customization—devising products or services tailored to the preferences of an individual—to discourage copying, because how many other people would want such a product? The use of technical protection techniques, which are often based on encryption, can also effectively manage access to digital information in many situations. Some of these technologies attempt to simulate the physical barriers to copying (by radically increasing the individual’s costs of making a copy), while other technologies facilitate after-the-fact monitoring and copyright enforcement activities.

There are consequences to an increased

dependence on business models and technical protection and to a decreased reliance on copyright law, because certain public policy goals are built into copyright law. For example, the first sale doctrine enables the building and lending of collections by libraries, archives, and other cultural institutions, allowing these institutions great latitude with what they do with copyrighted materials once purchased. A greater reliance on licensing in lieu of purchasing information products may fundamentally change the way in which these institutions operate. The fair use doctrine is an established component of copyright law and is the basis for the use of a copyrighted work for purposes such as criticism, comment, news reporting, teaching, scholarship, or research as permitted under 17 U.S.C. sec. 107. How are the important goals of the fair use doctrine affected by the digital revolution and an increased dependence on business models and technical protection?

Ultimately, a new framework for copyright may be needed. However, we are in the midst of the digital revolution. Given that laws are difficult to change once enacted, it would be premature to overhaul copyright law or policy at this time; the digital revolution needs time to play itself out. But we must also be mindful that impor-

tant public policy provisions are inherent in the copyright law. How are such provisions accommodated within the context of the increased use of business models/licensing and technical protection? 🌱

Endnotes

¹ Alan S. Inouye is a study director and program officer for the Computer Science and Telecommunications Board of the National Academies in Washington, D.C. He has many interests in the intersection of social science and information technology, which include improving access to digital government information, adapting copyright for the digital context, and understanding the impact of information technology on work and workplaces. Prior to receiving his Ph.D. from the University of California, Berkeley, School of Information Management and Systems, Inouye worked as a programmer/analyst and information systems manager in the computer industry. Readers can contact Inouye at <ainouye@nas.edu>.

² The former Federal Networking Council was succeeded by the Large Scale Networking Working Group of the Subcommittee on Computing, Information, and Communications <http://www.ccic.gov>.

³ The fulltext of *The Digital Dilemma* may be found at <http://www.cstb.org>

⁴ See the appendix for the membership of the study committee.