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**INTELLECTUAL PROPERTY
AND THE
NATIONAL INFORMATION INFRASTRUCTURE**

A PRELIMINARY DRAFT
OF
THE REPORT OF THE WORKING GROUP
ON INTELLECTUAL PROPERTY RIGHTS

*Bruce A. Lehman, Assistant Secretary of Commerce and
Commissioner of Patents and Trademarks, Chair*

INFORMATION INFRASTRUCTURE TASK FORCE
Ronald H. Brown, Secretary of Commerce, Chair

JULY 1994

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INTRODUCTION

In February 1993, President Clinton formed the Information Infrastructure Task Force (IITF) to articulate and implement the Administration's vision for the National Information Infrastructure (NII). The IITF is chaired by Secretary of Commerce Ronald H. Brown and consists of high-level representatives of the Federal agencies that play a role in advancing the development and application of information technologies. Guided by the principles for government action described in The NII Agenda for Action,¹ the participating agencies are working with the private sector, public interest groups, Congress, and State and local governments to develop comprehensive telecommunications and information policies and programs that best meet the country's needs.

To drive these efforts, the IITF is organized into three committees: the Telecommunications Policy Committee, which formulates Administration positions on key telecommunications issues; the Committee on Applications and Technology, which coordinates Administration efforts to develop, demonstrate and promote applications of information technologies in key areas; and the Information Policy Committee, which addresses critical information policy issues that must be dealt with if the NII is to be fully deployed and utilized. In addition, the IITF recently established a Security Issues Forum to assess the security needs and concerns of users, service providers, information providers, State governments and others.

The Working Group on Intellectual Property Rights, which is chaired by Assistant Secretary of Commerce and Commissioner of Patents and Trademarks Bruce A. Lehman, was established within the Information Policy Committee to examine the intellectual property implications of the NII.

This Report represents the Working Group's examination and analysis to date. While it addresses each of the major areas of

¹ Information Infrastructure Task Force, National Telecommunications and Information Administration, The National Information Infrastructure: Agenda for Action (Sept. 15, 1993).

intellectual property law, it focuses primarily on copyright law and its application and effectiveness in the context of the NII.²

To prepare this Report, the Working Group drew upon the expertise of its members from the Executive Branch and observers from the Legislative Branch. In addition, the Working Group received and considered views of the public.

The Working Group held a public hearing on November 18, 1993, at which 30 witnesses testified. The Working Group also solicited written comments and received some 70 statements during a public comment period which closed on December 10, 1993. Through this process, the Working Group heard from representatives of a wide variety of interested parties, including the computer software, motion picture, music, broadcasting, publishing and other information industries, as well as various electronic industries. Views of the academic, research, library and legal communities were also heard, as well as those of individual copyright owners and users.

The special intellectual property concerns and issues raised by the development and use of the NII are the subject of this Report; it does not attempt to address all existing intellectual property issues.³ Because of the legal nature of the subject, this Report uses certain words and phrases that may be unfamiliar to some readers or that

2 The "National Information Infrastructure," as it is discussed in this Report, is intended to encompass the digital, interactive services now available, such as the Internet, as well as those contemplated for the future. To make our analysis more concrete, however, we have, in many instances, evaluated the intellectual property implications of activity on the Internet, the superstructure whose protocols and rules effectively create (or permit the creation of) a "network of networks." This reflects neither an endorsement of the Internet nor a derogation of any other existing or proposed network or service that may be available via the NII, but, rather, an acknowledgment that a currently functioning structure lends itself more readily to legal analysis than a hypothetical construct.

3 For instance, the current debate over whether or to what extent certain aspects of computer programs are or should be protected under copyright law is not covered by this Report. Likewise, certain patent issues, such as pre-grant publication and reexamination, are not addressed.

do not have their ordinary meaning when used in the context of intellectual property law. The Working Group has attempted to identify these terms of art and provide their legal definitions.

The Working Group is issuing this Preliminary Draft of its Report to solicit public comment on the Report and, particularly, its preliminary findings and recommendations. An original and four copies of written comments should be submitted on or before September 7, 1994, to:

The Commissioner of Patents and Trademarks
U.S. Patent and Trademark Office
Box 4
Washington, D.C. 20231

Attention: Terri A. Southwick
Attorney-Advisor
Office of Legislative and International Affairs

Alternatively, comments may be submitted electronically to the following Internet address: nii-ip@uspto.gov.

Comments received will be available for public inspection at the Scientific and Technical Information Center of the U.S. Patent and Trademark Office, Room 2CO1, Crystal Plaza 34, 2021 Jefferson Davis Highway, Arlington, Virginia, between the hours of 9 a.m. and 4 p.m., Monday through Friday.

Reply comments may be submitted electronically or in writing no later than September 28, 1994.

This Report is also available on the IITF Bulletin Board. The Bulletin Board can be accessed through the Internet by pointing the Gopher Client to iitf.doc.gov or by telnet to [iitf.doc.gov](telnet://iitf.doc.gov) (log in as gopher). The Bulletin Board is also accessible at 202-501-1920 using a personal computer and a telephone modem. The Report may be found under "Speeches, Testimony and Documents" and is listed as "Intellectual Property Working Group Draft Report."

Public hearings will be held on this Report, and will be announced in the press, on the IITF Bulletin Board and in the Federal Register.

BACKGROUND

Intellectual property is a subtle and esoteric area of the law that evolves in response to technological change.⁴ Copyright law, in particular, responds to technological challenges for authors and copyright owners, from Gutenberg's moveable type printing press to digital audio recorders, and everything in between – photocopiers, radio, television, videocassette recorders, cable television and satellites. The use of computer technology – such as digitization – and communications technology – such as fiber optic cable – has had an enormous impact on the creation, reproduction and dissemination of copyrighted works. The development of the National Information Infrastructure will merge computer and communications technology into an integrated information technology, and will generate both unprecedented challenges and important opportunities for the copyright marketplace.

A national information infrastructure already exists. Telephones, televisions, radios, computers and fax machines are used every day to receive, store, process, perform, display and transmit data, text, voice, sound and images in homes and businesses throughout the country. Fiber optics, wires, cables, switches, routers, microwave networks, satellites and other communications technologies connect telephones to telephones, computers to computers, and fax machines to fax machines. The NII of tomorrow will be much more than these separate communications networks; it will integrate them into an advanced high-speed, interactive, broadband, digital communications system. Computers, telephones, televisions, radios, fax machines, and more will be linked by the NII and will be able to communicate and interact with other computers,

⁴ Supreme Court Justice Story found that copyright and patent cases come "nearer than any other class of cases belonging to forensic discussions, to what may be called the metaphysics of the law where the distinctions are, or at least may be, very subtle [sic] and refined, and, sometimes, almost evanescent." See *Folsom v. Marsh*, 9 F. Cas. 342, 344 (C.C.D. Mass. 1841) (No. 4,901).

telephones, televisions, radios, fax machines and more -- all in digital format.⁵

The NII has great potential to increase access to information and entertainment resources that will be delivered quickly and economically anywhere in the country in the blink of an eye. For instance, hundreds of channels of "television" programming, thousands of musical recordings, and literally millions of "magazines" and "books" can be made available to homes and businesses across the United States and, eventually, the world.⁶ It can improve the nation's educational and health care systems. It can enhance the ability of U.S. firms to compete and succeed in the global economy, generating more jobs for Americans. New job opportunities can also be created in the processing, organizing, packaging and dissemination of the information and entertainment products flowing through the NII.

Yet, the potential of the NII will not be realized if the information and entertainment products protectible by intellectual property laws are not protected effectively when disseminated via the NII. Owners of intellectual property rights will not be willing to put their interests at risk if appropriate systems -- both in the U.S. and internationally -- are not in place to permit them to set and enforce the terms and conditions under which their works are made available in the NII environment. Likewise, the public will not use the services available on the NII and generate the market necessary for its success unless access to a wide variety of works is provided under equitable and reasonable terms and conditions, and the integrity of those works is assured. All the computers, telephones,

5 These devices will be linked not only to each other (computer to computer, for example) but will also be cross-linked (computer to television).

6 The United States and other countries are working toward the development of a Global Information Infrastructure (GII) that "will allow us to share information, to connect, and to communicate as a global community." And as that information moves through international channels, "[p]rotecting intellectual property is absolutely essential." See Remarks Prepared for Delivery by Vice President Al Gore at the International Telecommunications Union in Buenos Aires, Argentina (March 21, 1994).

fax machines, scanners, cameras, keyboards, televisions, monitors, printers, switches, routers, wires, cables, networks and satellites in the world will not create a successful NII, if there is not content. What will drive the NII is the content moving through it.

The development of the NII is obviously neither the first nor the last technological challenge to copyright owners' ability to prevent unauthorized uses of their works.⁷ For instance, the advent of the photocopying machine caused great apprehension among copyright owners of printed works.⁸ But time, cost and quality were on the copyright owner's side. It was, and still is, more efficient and cheaper to buy an extra copy of most books than to photocopy them -- and the quality of a book from the original publisher is typically higher than that of a photocopy. The introduction of audio tape recorders also posed problems for copyright owners. But again, the physical attributes of the work made reproductions cheaper, but lower in quality -- until, of course, the introduction of digital audio recorders, which reproduce sound recordings both cheaply and with no degradation of sound quality. Congress responded to this threat to sound recordings with enactment of the Audio Home Recording Act of 1992, which combined legal and technological safeguards.⁹

7 See Sony Corp. v. Universal City Studios, Inc., 464 U.S. 417, 430-31 nn. 11-12 (1984) (hereinafter "Sony") (significance of changes in technology and their effect on copyright law).

8 The Commission on New Technological Uses of Copyrighted Works (hereinafter "CONTU") reported about the issues raised by photocopiers and computers back in 1978, using language that is applicable again today:

The ownership and control of information and the means of disseminating it are emerging as national and international policy issues. Concerns about the impact on individual freedom posed by the control of the flow of information are at the forefront of public debate. The adequacy of the legal structure to cope with the pace and rate of technological change frequently has been called into question.

Final Report of the National Commission on New Technological Uses of Copyrighted Works (hereinafter "CONTU Final Report") at 3 (citations omitted).

9 See 17 U.S.C. § 1001 et seq. (Supp. V 1993). The Audio Home Recording Act requires a serial copy management system in all digital audio recording devices and digital audio interface devices imported, manufactured or

Advances in digital technology and the rapid development of electronic networks and other communications technologies raise the stakes considerably. Any two-dimensional work can readily be "digitized" -- i.e., translated into digital code (a series of zeros and ones). The work can then be stored and used in that digital format. This dramatically increases: the ease and speed with which a work can be reproduced; the quality of the copies (both the first and the hundredth "generation"); the ability to manipulate and change the work; and the speed with which copies (authorized and unauthorized) can be "delivered" to the public. Works also can be combined easily with other works into a single medium, such as a CD-ROM, which is causing a blurring of the lines that typically divide types of works.

The establishment of high-speed, high-capacity electronic information systems makes it possible for one individual, with a few key strokes, to deliver perfect copies of digitized works to scores of other individuals -- or to upload a copy to a bulletin board or other service where thousands of individuals can download it or print unlimited "hard" copies on paper or disks. The emergence of integrated information technology is dramatically changing, and will continue to change, how people and businesses deal in information and entertainment products and services, and how works are created, owned, distributed, reproduced, displayed, performed, licensed, managed, presented, organized, sold, accessed, used, and stored. This leads, understandably, to a call for change in the law.

distributed in the United States. Such a system allows unlimited first generation digital copying of sound recordings, but prevents the making of digital copies from copies. The Act prohibits the importation, manufacture or distribution of any device, or the offering or performance of any service, the primary purpose of which is to circumvent any program or circuit which implements a serial copy management system. The Act also establishes a royalty system through which importers and manufacturers of digital audio recording devices and digital audio recording media make royalty payments on each device or medium they distribute. Such payments are collected by the Copyright Office and distributed annually to record companies, performers, music publishers and songwriters.

Thomas Jefferson stated:

I am not an advocate for frequent changes in laws and constitutions. But laws and institutions must go hand and hand with the progress of the human mind. As that becomes more developed, more enlightened, as new discoveries are made, new truths discovered and manners and opinions change, with the change of circumstances, institutions must advance also to keep pace with the times. We might as well require a man to wear still the coat which fitted him when a boy¹⁰

Our task is to determine whether the coat still fits in this new information age.

Our intellectual property regime must (1) recognize the legitimate rights and commercial expectations of persons and entities whose works are used in the NII environment, whether at their instance or without their permission, and (2) ensure that users have access to the broadest feasible variety of works on terms and conditions that, in the language of the Constitution, "promote the progress of science and the useful arts."¹¹

For more than two centuries copyright law, with periodic amendment, has provided protection for an increasing variety of works of authorship. The most recent complete revision of the law -- The Copyright Act of 1976 -- was enacted in response to "significant changes in technology [that had] affected the operation of the copyright law."¹² The legislative history of the 1976 Act noted that

¹⁰ See Inscription at the Jefferson Memorial. As Secretary of State, Thomas Jefferson was the first head of the U.S. Patent Office.

¹¹ Congress' authority to grant certain intellectual property rights is derived from Article I, Section 8, Clause 8 of the U.S. Constitution: "The Congress shall have Power . . . 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."

¹² See H.R. Rep. No. 1476, 94th Cong., 2d Sess. 47 (1976), reprinted in 1976 U.S.C.C.A.N. 5659 (hereinafter "House Report") ("During the past half century a wide range of new techniques for capturing and communicating printed

those changes had "generated new industries and new methods for the reproduction and dissemination of copyrighted works, and the business relations between authors and users have evolved new patterns."¹³

We are once again faced with significant changes in technology, and views on the appropriate response to these changes vary widely. There are some who argue that the Copyright Act is adequate without any modification. Others suggest that a complete overhaul of the intellectual property regime is in order.¹⁴ We believe that with no more than minor clarification and amendment, the Copyright Act, like the Patent Act, will provide the necessary protection of rights -- and limitations on those rights -- to promote the progress of science and the useful arts. There must be, however, effort in three disciplines -- the law, technology and education -- to successfully resolve the intellectual property issues raised by the development and use of the NII.

matter, visual images, and recorded sounds have come into use, and the increasing use of information storage and retrieval devices, communications satellites, and laser technology promises even greater changes in the near future.").

13 See House Report at 47, reprinted in 1976 U.S.C.C.A.N. 5660.

14 It has even been suggested that intellectual property law is an antiquated system which has no place in the NII environment.

I. LAW

A. COPYRIGHT

1. SUBJECT MATTER AND SCOPE OF PROTECTION

a. ELIGIBILITY FOR PROTECTION

The subject matter eligible for protection under the Copyright Act¹⁵ is set forth in Section 102(a):

Copyright protection subsists . . . in original works of authorship fixed in any tangible medium of expression, now known or later developed, from which they can be perceived, reproduced, or otherwise communicated, either directly or with the aid of a machine or device.¹⁶

¹⁵ The Copyright Act of 1976, as amended, is codified at 17 U.S.C. § 101 *et seq.* (1988 & Supp. V 1993). Hereinafter, the Act is cited as "17 U.S.C. § ___." The Copyright Act preempts any grant of equivalent rights for works of authorship within the specified subject matter. Section 301 provides:

On and after January 1, 1978, all legal or equitable rights that are equivalent to any of the exclusive rights within the general scope of copyright as specified by section 106 in works of authorship that are fixed in a tangible medium of expression and come within the subject matter of copyright as specified by sections 102 and 103, whether created before or after that date and whether published or unpublished, are governed exclusively by this title. Thereafter, no person is entitled to any such right or equivalent right in any such work under the common law or statutes of any State.

17 U.S.C. § 301(a) (1988).

¹⁶ 17 U.S.C. § 102(a) (1988 & Supp. V 1993). The Copyright Act specifically excludes from protectible subject matter any "idea, procedure, process, system, method of operation, concept, principle or discovery" even if it meets the criteria for protection. See 17 U.S.C. § 102(b) (1988).

From this provision, the courts have derived three basic requirements for copyright protection -- originality, creativity and fixation.

The requirements of originality and creativity are derived from the statutory qualification that copyright protection extends only to "original works of authorship."¹⁷ To be original, a work merely must be one of independent creation -- i.e., not copied from another. There is no requirement that the work be novel (as in patent law), unique or ingenious. While there must also be a modicum of creativity in the work, the level of creativity required is exceedingly low; "even a slight amount will suffice."¹⁸

The final requirement for copyright protection is fixation in a tangible medium of expression. Protection attaches automatically to an eligible work of authorship the moment the work is sufficiently fixed.¹⁹ Congress provided considerable room for technological advances in the area of fixation by noting that the medium may be "now known or later developed."²⁰

The Copyright Act divides the possible media for fixation into "copies" and "phonorecords":

"Copies" are material objects, other than phonorecords, in which a work is fixed by any method now known or later developed, and from which the work can be perceived,

17 See 17 U.S.C. § 102(a) (1988 & Supp. V 1993). The statutory qualification is derived from Congress' limited Constitutional authority to grant copyright protection to "authors" for their "writings." See U.S. CONST., art. I, § 8, cl. 8.

18 Feist Publications, Inc. v. Rural Tele. Serv. Co., 499 U.S. 340, 345 (1991) ("vast majority of works make the grade quite easily, as they possess some creative spark").

19 Formal requirements for obtaining or enjoying copyright protection -- such as registration or a copyright notice -- have been abolished.

20 See 17 U.S.C. § 102(a) (1988 & Supp. V 1993).

reproduced, or otherwise communicated, either directly or with the aid of a machine or device.²¹

"Phonorecords" are material objects in which sounds, other than those accompanying a motion picture or other audiovisual work, are fixed by any method now known or later developed, and from which the sounds can be perceived, reproduced, or otherwise communicated, either directly or with the aid of a machine or device.²²

According to the House Report accompanying the Copyright Act of 1976, Congress intended the terms "copies" and "phonorecords" to "comprise all of the material objects in which copyrightable works are capable of being fixed."²³

The form of the fixation and the manner, method or medium used are virtually unlimited. A work may be fixed in "words, numbers, notes, sounds, pictures, or any other graphic or symbolic indicia"; may be embodied in a physical object in "written, printed, photographic, sculptural, punched, magnetic, or any other stable form"; and may be capable of perception either "directly or by means of any machine or device 'now known or later developed.'"²⁴

All works created for placement on the NII or transmission through it will be "fixed" in a manner that requires their protection by copyright. In a digital format, a work is fixed in a series of zeros and ones, which fits within the House Report's list of permissible manners of fixation.²⁵ Virtually all works also will be fixed in acceptable material objects. For instance, floppy disks, compact discs (CDs), CD-ROMs, optical disks, CD-Is, digital tape, and other digital

21 17 U.S.C. § 101 (1988) (definition of "copies").

22 17 U.S.C. § 101 (1988) (definition of "phonorecords").

23 House Report at 53, reprinted in 1976 U.S.C.C.A.N. 5666-67.

24 House Report at 52, reprinted in 1976 U.S.C.C.A.N. 5665-66.

25 See id.

storage devices are all stable forms in which works may be fixed and from which works may be perceived, reproduced or communicated by means of a machine or device.²⁶

The question of whether interactive works are fixed (given the user's ability to constantly alter the sequence of the "action") has been resolved by the courts in the context of video games and should not present a new issue in the context of the NII. Such works are generally considered sufficiently fixed.²⁷ The sufficiency of the fixation of works transmitted via the NII, however, where no copy or phonorecord has been made prior to the transmission, is not so clear.

A transmission is not a fixation. While a transmission may result in a fixation, a work is not fixed by virtue of the transmission alone. Therefore, works transmitted "live" via the NII will not meet the fixation requirement, and will be unprotected by the Copyright Act unless the work is being fixed at the same time as it is being transmitted.²⁸ The Copyright Act provides that a work "consisting of sounds, images, or both, that are being transmitted" meets the fixation requirement "if a fixation of the work is being made simultaneously with its transmission."²⁹ To obtain protection for a work under this "simultaneous fixation" provision, the simultaneous fixation of the transmitted work must itself qualify as a sufficient fixation.

26 See, e.g., Stern Elecs., Inc. v. Kaufman, 669 F.2d 852, 855 (2d Cir. 1982) (putting work in "memory devices" of a computer "satisf[ies] the statutory requirement of a 'copy' in which the work is 'fixed'").

27 See, e.g., Atari Games Corp. v. Oman, 888 F.2d 878 (D.C. Cir. 1989).

28 Unfixed broadcasts are not within the subject matter of Federal copyright law. Therefore, protection of such works is not preempted and may be provided in state statutory or common law. See 17 U.S.C. § 301 (1988 & Supp. V 1993).

29 See 17 U.S.C. § 101 (1988) (definition of "fixed"); see also Baltimore Orioles, Inc. v. Major League Baseball Players Assoc., 805 F.2d 663, 668 (7th Cir. 1986) (telecasts that are videotaped at the same time that they are broadcast are fixed in tangible form), cert. denied, 480 U.S. 941 (1987). It is understood that the "fixation" must be made or authorized by the author.

A simultaneous fixation (or any other fixation) meets the requirements if its embodiment in a copy or phonorecord is "sufficiently permanent or stable to permit it to be perceived, reproduced, or otherwise communicated for a period of more than transitory duration."³⁰ Works are not sufficiently fixed if they are "purely evanescent or transient" in nature, "such as those projected briefly on a screen, shown electronically on a television or cathode ray tube, or captured momentarily in the 'memory' of a computer."³¹ Electronic network transmissions from one computer to another, such as e-mail, may only reside on each computer in RAM (random access memory), but that has been found to be sufficient fixation.³²

b. PUBLISHED AND UNPUBLISHED WORKS

Although prior to 1978, Federal copyright protection generally was available only for published works, such protection is now available for published as well as unpublished works.³³ The Copyright Act provides a definition of "publication" to draw the line between published and unpublished works.

³⁰ 17 U.S.C. § 101 (1988) (definition of "fixed").

³¹ House Report at 53, reprinted in 1976 U.S.C.C.A.N. 5666-67.

³² See Advanced Computer Services of Michigan Inc. v. MAI Systems Corp., 845 F. Supp. 356, 363 (E.D. Va. 1994) (conclusion that program stored only in RAM is sufficiently fixed is confirmed, not refuted, by argument that it "disappears from RAM the instant the computer is turned off"; if power remains on (and work remain in RAM) for only seconds or fractions of a second, "the resulting RAM representation of the program arguably would be too ephemeral to be considered 'fixed'"). There may be too much of a delay between transmission and "fixation" (if any) on the receiving computer's screen or RAM to qualify as a "simultaneous" fixation.

³³ See 17 U.S.C. § 104 (1988 & Supp. V 1993). Prior to 1978, certain unpublished works, particularly dramatic works and musical compositions, could obtain copyright protection through registration with the Copyright Office. Since 1978, all otherwise eligible unpublished works are protected. See 17 U.S.C. § 104(a) (1988 & Supp. V 1993).

"Publication" is the distribution of copies or phonorecords of a work to the public by sale or other transfer of ownership, or by rental, lease, or lending. The offering to distribute copies or phonorecords to a group of persons for purposes of further distribution, public performance, or public display constitutes publication. A public performance or display of a work does not of itself constitute publication.³⁴

The definition was intended to make clear that "any form of dissemination in which a material object does not change hands -- performances or displays on television, for example -- is not a publication no matter how many people are exposed to the work."³⁵ Therefore, unless otherwise published, a work only displayed or performed via the NII would not be considered "published" under the Copyright Act, no matter how many people have access to it. The House Report also states, however, that the definition was intended to clarify that the offering of copies or phonorecords to a group of, for instance, wholesalers, broadcasters or motion picture theater operators constitutes publication if the purpose of the offering is "further distribution, public performance, or display."³⁶ Therefore, if sufficient numbers of actual copies of the work are offered to bulletin board system ("BBS")³⁷ operators or others for upload onto systems on the NII, publication may occur.

34 17 U.S.C. § 101 (1988) (definition of "publication").

35 See House Report at 138, reprinted in 1976 U.S.C.C.A.N. 5754. See also discussion of transmissions and the "distribution" of copies infra pp. 38-42.

36 See House Report at 138.

37 A bulletin board system is a computer system to which subscribers have telecommunications access for many purposes, including sending and receiving electronic mail, and obtaining and delivering files (which may consist of software, text, graphic images, or anything else that may be placed in a digital format). A BBS may be (1) commercial, as in the examples of CompuServe, Prodigy, and the like, (2) institutional, as in the case of a university BBS, or (3) individually owned and operated.

The classification of a work as either published or unpublished has significant repercussions under the Copyright Act. For example:

- works that are published in the United States are subject to mandatory deposit in the Library of Congress;³⁸
- unpublished works are eligible for protection without regard to the nationality or domicile of the author;³⁹
- published works must bear a copyright notice if published before March 1, 1989;⁴⁰
- certain limitations on the exclusive rights of a copyright owner are applicable only to published works;⁴¹

38 17 U.S.C. § 407 (1988). "[T]he owner of copyright or of the exclusive right of publication in a work published in the United States shall deposit, within three months after the date of publication – (1) two complete copies of the best edition; or (2) if the work is a sound recording, two complete phonorecords of the best edition, together with any printed or other visually perceptible material published with such phonorecords." 17 U.S.C. § 407(a) (1988). The deposit requirements are not conditions of copyright protection, but failure to deposit copies of a published work may subject the copyright owner to significant fines. See 17 U.S.C. § 407(a), (d) (1988).

39 17 U.S.C. § 104(a) (1988 & Supp. V 1993); see also 17 U.S.C. § 104(b) (1988 & Supp. V 1993) (national origin requirements for published works).

40 17 U.S.C. § 405 (1988). For such works, failure to include a copyright notice risks total loss of copyright protection. See id. Works published after March 1, 1989 (the effective date of the Berne Implementation Act) may (but are not required to) bear a copyright notice identifying the year of publication and the name of the copyright owner. See 17 U.S.C. § 401 (1988).

41 See generally 17 U.S.C. §§ 107 - 120 (1988 & Supp. V 1993). See, e.g., 17 U.S.C. § 118 (1988 & Supp. V 1993) (compulsory license is available for the use of certain published works in connection with noncommercial broadcasting). Whether a work is considered published or unpublished is also relevant in a fair use analysis. See discussion of fair use infra notes 145, 147 and accompanying text.

- deposit requirements for registration with the Copyright Office differ depending on whether a work is published or unpublished;⁴² and
- the duration of protection for works made for hire may be determined by the date of publication.⁴³

C. WORKS NOT PROTECTED

Certain works of authorship are expressly excluded from protection under the Copyright Act, regardless of their originality, creativity and fixation. Copyright protection, for example, does not extend to any "idea, procedure, process, system, method of operation, concept, principle, or discovery, regardless of the form in which it is described, explained, illustrated, or embodied" in such work.⁴⁴ Thus, although a magazine article on how to tune a car engine is protected by copyright, that protection extends only to the expression of the ideas, facts and procedures in the article, not the ideas, facts and procedures themselves, no matter how creative or original they may be. Anyone may "use" the ideas, facts and procedures in the article to tune an engine – or to write another article on the same subject. What may not be taken is the expression used by the original author to describe or explain those ideas, facts and procedures.⁴⁵

42 See 17 U.S.C. § 408(b) (1988) ("the material deposited for registration shall include – (1) in the case of an unpublished work, one complete copy or phonorecord; (2) in the case of a published work, two complete copies or phonorecords of the best edition; (3) in the case of a work first published outside the United States, one complete copy or phonorecord as so published; (4) in the case of a contribution to a collective work, one complete copy or phonorecord of the best edition of the collective work").

43 See 17 U.S.C. § 302(c) (1988).

44 17 U.S.C. § 102(b) (1988).

45 This is usually referred to as the "idea/expression dichotomy." The ideas are not protected; the expression is. The line between idea and expression is not easy to draw. The distinction is not that one is fixed and the other is not – they are both fixed in the copyrighted work of authorship. At some point, the

Copyright protection is not extended under the Copyright Act to works of the U.S. Government.⁴⁶ A work of the U.S. Government may, therefore, be reproduced and distributed without infringement liability under U.S. copyright laws.⁴⁷ Titles, names, short phrases, and slogans⁴⁸ also do not enjoy copyright protection under the Copyright Act.⁴⁹

idea becomes detailed enough to constitute expression. Judge Learned Hand explained:

Upon any work . . . a great number of patterns of increasing generality will fit equally well, as more and more of the incident is left out. The last may perhaps be no more than the most general statement of what the [work] is about, and at times might consist only of its title; but there is a point in this series of abstractions where they are no longer protected, since otherwise the [author] could prevent the use of his "ideas," to which, apart from their expression, his property is never extended.

Nichols v. Universal Pictures Corp., 45 F.2d 119, 121 (2d Cir. 1930).

46 17 U.S.C. § 105 (1988). While Section 105 leaves works created by the U.S. Government unprotected under U.S. copyright laws, Congress did not intend for the section to have any effect on the protection of U.S. government works abroad. See House Report at 59, reprinted in 1976 U.S.C.C.A.N. 5672. Further, while works created by the U.S. Government are not protected by the Copyright Act, copyright interests transferred to the U.S. Government by assignment, bequest or otherwise may be held and enforced by it. See 17 U.S.C. § 105 (1988).

47 A work of the U.S. Government is a work "prepared by an officer or employee of the United States Government as part of that person's official duties." 17 U.S.C. § 101 (definition of "work of the United States Government"). Although the wording of this definition is not identical to that of a "work made for hire," the concepts "are intended to be construed in the same way." House Report at 58, reprinted in 1976 U.S.C.C.A.N. 5672. See discussion of works made for hire infra notes 84-86 and accompanying text.

48 See, e.g., Takeall v. Pepsico Inc., 29 U.S.P.Q.2d 1913 (4th Cir. 1993) (unpublished) (holding phrase "You got the right one, uh-huh" is not copyrightable and, thus, was not infringed by commercial using phrase "You got the right one baby, uh-huh"). While short phrases are not copyrightable standing alone, they may be protected as part of a larger, copyrighted work. See e.g. Dawn Assoc. v. Links, 203 U.S.P.Q. 831 (N.D. Ill. 1978) (holding phrase

d. CATEGORIES OF PROTECTIBLE WORKS

The Copyright Act enumerates eight broad categories of protectible subject matter:

- (1) literary works;
- (2) musical works, including any accompanying words;
- (3) dramatic works, including any accompanying music;
- (4) pantomimes and choreographic works;
- (5) pictorial, graphic and sculptural works;
- (6) motion pictures and other audiovisual works;
- (7) sound recordings; and
- (8) architectural works.⁵⁰

LITERARY WORKS

Although many categories of works will be available via the NII, the majority of works currently available on computer networks such as the Internet are literary works.

"Literary works," are works, other than audiovisual works, expressed in words, numbers, or other verbal or numerical symbols or indicia, regardless of the nature of the material objects, such as books, periodicals,

"When there is no room in hell . . . the dead will walk the earth" to be an integral part of a copyrighted advertisement, and defendant's unauthorized use of it was therefore infringing); Grand Upright Music Ltd. v. Warner Bros. Records, Inc., 780 F. Supp. 182, 183-85 (S.D.N.Y. 1991) (finding lyric "alone again" to be protected as part of a copyrighted work and infringed by defendant rap artist's "sampling").

49 Other material ineligible for copyright protection includes the utilitarian elements of industrial designs; familiar symbols or designs; simple geometrical shapes; mere variations of typographic ornamentation, lettering or coloring; common works considered public property, such as standard calendars, height and weight charts, and tape measures and rulers.

50 17 U.S.C. § 102(a) (1988 & Supp. V 1993).

manuscripts, phonorecords, films, tapes, disks, or cards, in which they are embodied.⁵¹

Literary works include computer programs,⁵² articles, novels, directories, computer databases, essays, catalogs, poetry, dictionaries, encyclopedias, and other reference materials.⁵³

MUSICAL WORKS

A musical work consists of the musical notes and lyrics (if any) in a musical composition.⁵⁴ A musical work may be embodied in any form, such as a piece of sheet music or a compact disc.⁵⁵ Musical works may be "dramatic," i.e., written as a part of a musical or other dramatic work, or "nondramatic," i.e., an individual, free-standing composition.

51 17 U.S.C. § 101 (1988) (definition of "literary works").

52 Following the recommendation of CONTU, Congress amended the Copyright Act in 1980 to explicitly recognize that computer programs were protected as literary works. See Act of December 12, 1980, Pub. L. 96-517, 1980 U.S.C.C.A.N. (94 Stat.) 3015. "Computer programs" are defined as a "set of statements or instructions to be used directly or indirectly in a computer in order to bring about a certain result." See 17 U.S.C. § 101 (1988 & Supp. V 1993).

53 See House Report at 54, reprinted in 1976 U.S.C.C.A.N. 5667.

54 Congress did not define the term "musical work" in the statute based on the assumption that the term had a "fairly settled" meaning. See House Report at 53, reprinted in 1976 U.S.C.C.A.N. 5666-67.

55 A phonorecord generally embodies two works -- a musical work or, in the case of spoken word recordings, a literary work, and a sound recording. Musical works available through services on the NII may also be the subject of Musical Instrument Digital Interface ("MIDI") recordings. A MIDI is a data stream between a musical unit in a computer and a music-producing instrument. The data stream instructs the instrument, such as a synthesizer, on what notes to play.

DRAMATIC WORKS

Generally, a dramatic work is one in which a series of events is presented to the audience by characters through dialogue and action as the events happen, such as in a play.⁵⁶

PANTOMIMES AND CHOREOGRAPHIC WORKS

This category was first added to the list of protectible subject matter in 1976.⁵⁷ While pantomimes and choreographic works, such as dances, can be fixed in a series of drawings or notations, they are usually fixed on film or videotape.

PICTORIAL, GRAPHIC AND SCULPTURAL WORKS

A significant percentage of the works traveling through the NII will be pictorial and graphic works. Works in this category include:

[T]wo-dimensional and three-dimensional works of fine, graphic, and applied art, photographs, prints and art reproductions, maps, globes, charts, diagrams, models, and technical drawings, including architectural plans.⁵⁸

MOTION PICTURES AND OTHER AUDIOVISUAL WORKS

The Copyright Act provides definitions of "audiovisual works" and the subcategory "motion pictures."

56 See H. Abrams, *The Law of Copyright* § 204[C][3][b][iv] (1993). The term "dramatic works" is not defined in the Act. See House Report at 53, reprinted in 1976 U.S.C.C.A.N. 5666-67.

57 Congress also declined to define the terms "pantomimes" and "choreographic works," again relying on "fairly settled meanings." See House Report at 53, reprinted in 1976 U.S.C.C.A.N. 5666-67.

58 17 U.S.C. § 101 (1988) (definition of "pictorial, graphic, and sculptural works").

"Audiovisual works" are works that consist of a series of related images which are intrinsically intended to be shown by the use of machines, or devices such as projectors, viewers, or electronic equipment, together with accompanying sounds, if any, regardless of the nature of the material objects, such as films or tapes, in which the works are embodied.⁵⁹

"Motion pictures" are audiovisual works consisting of a series of related images which, when shown in succession, impart an impression of motion, together with accompanying sounds, if any.⁶⁰

The House Report notes that the key to the subcategory "motion pictures" is the conveyance of the impression of motion, and that such an impression is not required to qualify as an audiovisual work.⁶¹

ARCHITECTURAL WORKS

An "architectural work" is "the design of a building, as embodied in any tangible medium of expression, including a building, architectural plans, or drawings."⁶² It includes the overall form as well as the "arrangement and composite of spaces and elements" in the design of the building.⁶³

59 17 U.S.C. § 101 (1988) (definition of "audiovisual works").

60 17 U.S.C. § 101 (1988) (definition of "motion pictures").

61 See House Report at 56, reprinted in 1976 U.S.C.C.A.N. 5669.

62 17 U.S.C. § 101 (Supp. V 1993) (definition of "architectural work"). The category of architectural works was added in 1990 by the Architectural Works Copyright Protection Act, Public Law 101-650, 1990 U.S.C.C.A.N. (104 Stat.) 5089, 5133.

63 Id.

"MULTIMEDIA" WORKS

Increasingly, works from different categories are fixed in a single tangible medium of expression.⁶⁴ This will certainly be true as development of the NII progresses and the ability to create and disseminate interactive so-called "multimedia" or "mixed media" products increases.

A prefatory note may be warranted because of the manner in which these terms are used in the context of copyright law. The terms "multimedia" and "mixed media" are, in fact, misnomers. In these works, it is the types or categories of works included that are "multiple" or "mixed" -- not the media. The very premise of a so-called "multimedia" work is that it combines several different elements or types of works (e.g., text (literary work), sound (sound recording), still images (pictorial works), and moving images (audiovisual work) into a single medium (e.g., a CD-ROM) -- not multiple or mixed media.⁶⁵ However, in recognition of the prevalent use of the term, this Report refers to this type of work as a "multimedia" work.

Multimedia works are not categorized separately under the Copyright Act; nor are they explicitly included in any of the eight enumerated categories. While most current multimedia works would be considered compilations,⁶⁶ that classification does not resolve the issue of subject matter categorization.⁶⁷

64 The embodiment of two or more different types of works in one medium is not a new concept. For instance, a book may contain both a literary work and pictorial works. A compact disc may contain a musical work, a sound recording and a computer program.

65 A true "multimedia" work would be one in which several material objects, such as a book, a videocassette and an audiocassette, are bundled into one product.

66 See discussion of compilations *infra* pp. 27-28.

67 While expressly protected under the Copyright Act, the category of "compilations" is not a particularly useful subject matter category. Works in any of the eight enumerated categories of protectible subject matter outlined

Despite the fact that the Copyright Act enumerates eight categories of works, works that do not fit into any of the categories may, nevertheless, be protected. The list of protectible works in Section 102 is intended to be illustrative rather than exclusive. The House Report explains that the categories of works "do not necessarily exhaust the scope of 'original works of authorship' that the [Act] is intended to protect."⁶⁸ However, absent the addition of a new category, a work that does not fit into one of the enumerated categories is, in a sense, in a copyright no-man's land.⁶⁹

Categorization of works (and, specifically, proper categorization) holds a great deal of significance under the Copyright Act. For instance, two of the exclusive rights granted in Section 106 apply only to certain categories of works.⁷⁰ In addition, many of the

above may take the form of a compilation, and a compilation may fit into one or more of the subject matter categories.

68 House Report at 53, reprinted in 1976 U.S.C.C.A.N. 5666. Indeed, Congress amended the Copyright Act in 1990 to add "architectural works" as a category of protectible works. See supra note 62.

69 It should be noted that the Copyright Office classifies works into four broad categories for purposes of registration: nondramatic literary works, works of performing arts, works of visual arts, and sound recordings. See 37 C.F.R. § 202.3(b)(i)-(iv). The Copyright Office notes that in cases "where a work contains elements of authorship in which copyright is claimed which fall into two or more classes, the application should be submitted in the class most appropriate to the type of authorship that predominates in the work as a whole." See 37 C.F.R. § 202.3(b)(2). However, the Copyright Act makes clear that the Copyright Office classification of works for purposes of registration "has no significance with respect to the subject matter of copyright or the exclusive rights provided." See 17 U.S.C. § 408(c)(1) (1988); see also House Report at 153, reprinted in 1976 U.S.C.C.A.N. 5769 ("It is important that the statutory provisions setting forth the subject matter of copyright be kept entirely separate from any classification of copyrightable works for practical administrative purposes.").

70 See 17 U.S.C. § 106(4),(5) (1988). The public performance right is limited to literary, musical, dramatic, and choreographic works, pantomimes, and motion pictures and other audiovisual works. The public display right is limited to literary, musical, dramatic, and choreographic works, pantomimes,

limitations on rights in Sections 108 through 120 are not applicable to all types of works.⁷¹ Therefore, categorization of multimedia works is an important issue.

Generally, multimedia works include two or more of the following preexisting elements: text (literary works), computer programs (literary works), music (sound recordings), still images (pictorial and graphic works) and moving images (audiovisual works). The definition of "literary works" begins with the phrase "works, other than audiovisual works, . . ." ⁷² Therefore, a reasonable interpretation is that text and computer programs that would otherwise be categorized as literary works may be considered part of an audiovisual work if included in a work of that type. Such is also the case with sound recordings. A music video is not categorized as both a sound recording and an audiovisual work; it is categorized as an audiovisual work.⁷³ Thus, in the case of literary works and sound

and pictorial, graphic, or sculptural works, including the individual images of a motion picture or other audiovisual work. *Id.*

71 See, e.g., 17 U.S.C. § 108(h) (1988) (limitation not applicable to musical works, pictorial, graphic or sculptural works, or motion pictures or other audiovisual works other than audiovisual works dealing with news); 17 U.S.C. § 109(b) (Supp. V 1993) (certain limitations not applicable to sound recordings or computer programs); 17 U.S.C. § 110(4) (1988) (limitation applicable only to nondramatic literary or musical works); 17 U.S.C. § 110(8) (1988) (limitation applicable only to nondramatic literary works); 17 U.S.C. § 110(9) (1988) (limitation applicable only to dramatic literary works); 17 U.S.C. § 112(a) (1988) (limitation not applicable to motion pictures or other audiovisual works); 17 U.S.C. § 113 (1988 & Supp. V 1993) (limitation applicable only to pictorial, graphic, or sculptural works); 17 U.S.C. § 114 (1988) (limitation applicable only to sound recordings); 17 U.S.C. § 115 (1988) (limitation applicable only to nondramatic musical works); and 17 U.S.C. § 120 (Supp. V 1993) (limitation applicable only to architectural works).

72 See 17 U.S.C. § 101 (1988) (definition of "literary works") (emphasis added).

73 The definition of "sound recordings" explicitly excludes from the category of sound recordings musical, spoken or other sounds "accompanying a motion picture or other audiovisual work . . ." See 17 U.S.C. § 101 (1988) (definition of "sound recordings"). The definition of "audiovisual works" also

recordings, the "audiovisual works" category appears to "trump" the others. Audiovisual works also include still images -- at least related ones.⁷⁴ Therefore, generally, multimedia works would likely be considered audiovisual works.

The somewhat strained analysis needed to find a category for multimedia works and the increasing "cross-breeding" of types of works demonstrate that categorization may no longer be useful. Its necessity is also questionable, except, perhaps, in the case of sound recordings, which are not granted the full panoply of rights.⁷⁵ Consideration may be given to eliminating categorization under the Copyright Act in the future.

COMPILATIONS AND DERIVATIVE WORKS

A "compilation" is "a work formed by the collection and assembling of preexisting materials or of data that are selected, coordinated, or arranged in such a way that the resulting work as a whole constitutes an original work of authorship."⁷⁶ Directories, magazines and anthologies are types of compilations. A "derivative work" is a work "based upon" one or more existing works.⁷⁷ A derivative work is created when one or more existing works is "recast, transformed, or adapted" into a new work, such as when a

expressly includes any "accompanying sounds." See 17 U.S.C. § 101 (1988) (definition of "audiovisual works").

74 Audiovisual works are "works that consist of a series of related images which are intrinsically intended to be shown by the use of machines, or devices such as projectors, viewers, or electronic equipment" 17 U.S.C. § 101 (1988) (definition of "audiovisual works").

75 See discussion *infra* note 122 and accompanying text.

76 17 U.S.C. § 101 (1988) (definition of "compilation"). A "collective work," which is one kind of "compilation," is "a work, such as a periodical issue, anthology, or encyclopedia, in which a number of contributions, constituting separate and independent works in themselves, are assembled into a collective whole." 17 U.S.C. § 101 (1988) (definition of "collective work").

77 17 U.S.C. § 101 (1988) (definition of "derivative work").

novel is used as the basis of a movie or when a drawing is transformed into a sculpture.⁷⁸ Translations, musical arrangements and abridgments are types of derivative works.

The Copyright Act makes clear that the subject matter of copyright specified in Section 102 (literary works, musical works, sound recordings, etc.) includes compilations and derivative works.⁷⁹ The copyright in a derivative work or compilation, however, extends only to the contribution of the author of the derivative work or compilation (the compiler), and does not affect the copyright protection granted the preexisting material.⁸⁰ The copyright protection for an individual musical work, for instance, is not reduced or enlarged, or shortened or extended if the work is included in a compilation, such as a medley of songs. Copyright in a compilation or derivative work does not imply any exclusive right in the preexisting material employed in the compilation or derivative work.⁸¹

2. COPYRIGHT OWNERSHIP

Copyright ownership in a work initially vests in the author of the work.⁸² If the work is a "joint work" with two or more authors, those authors are co-owners of the copyright in the work.⁸³

78 See id.

79 See 17 U.S.C. § 103(a) (1988).

80 17 U.S.C. § 103(b) (1988).

81 Id.

82 17 U.S.C. § 201(a) (1988).

83 Id. A "joint work" is a work "prepared by two or more authors with the intention that their contributions be merged into inseparable or interdependent parts of a unitary whole." 17 U.S.C. § 101 (1988) (definition of "joint work").

Under certain circumstances, the copyright in a work is not granted to the actual preparer of the work. In the case of "works made for hire," the employer of the preparer or the person for whom the work was prepared is considered the "author" for purposes of the Copyright Act.⁸⁴ There are two types of works made for hire -- those prepared by an employee and those prepared by an independent contractor under special order or commission. The copyright in a work prepared by an employee within the scope of employment vests in the employer, and the employer is the author.⁸⁵ The copyright in a work specially ordered or commissioned vests in the person for whom the work was prepared if the work falls into one of nine specified categories and if the parties expressly agree in writing that the work will be considered a work made for hire.⁸⁶

84 See 17 U.S.C. § 201(b) (1988). This legal conclusion may only be altered by the parties in a written instrument signed by them expressly agreeing otherwise. *Id.*

85 The Copyright Act does not define "employee." In 1989, the Supreme Court held that an employment relationship determination for copyright purposes should be made by reference to the "general common law of agency." See Community for Creative Non-Violence v. Reid, 490 U.S. 730, 740-41 (1989). The central question in an agency law inquiry is whether the hiring party has the "right to control the matter and means by which the product is accomplished." *Id.* at 751. The factors to be considered include the skill required, the source of the instrumentalities and tools used in creating the work, where the work was created, the duration of the relationship between the parties, whether the hiring party has the right to assign additional projects to the hired party, the method of payment, the extent of the hired party's discretion over when and how long to work, the hired party's role in hiring and paying assistants, whether the hiring party is in business and whether the work is part of the regular business of the hiring party, the provision of employee benefits, and the tax treatment of the hired party. *Id.* at 751-52. The Court did not specify any factors that should be weighed more heavily than others, but made clear that an "employee" under the Copyright Act is not limited to a formal, salaried employee.

86 To qualify as a work made for hire under the second prong, the work must be specially ordered or commissioned for use as (1) a contribution to a collective work; (2) part of an audiovisual work; (3) a translation; (4) a supplementary work; (5) a compilation; (6) an instructional text; (7) a test; (8) answer material for a test; or (9) an atlas. 17 U.S.C. § 101 (1988) (definition of "work made for hire").

Copyright ownership, or ownership of any of the exclusive rights (or subdivision thereof), may be transferred to one or more persons, but the transfer must be in writing and must be signed by the transferor.⁸⁷

Copyright ownership entitles the copyright owner to:

- (1) exercise the exclusive rights granted under Section 106;
 - (2) authorize others to exercise any of those exclusive rights;
- and
- (3) prevent others from exercising any of those exclusive rights.

An important distinction to understand is the difference between ownership of a copyright in a work and ownership of a copy of a work. Ownership of a copy – a material object in which a copyrighted work is fixed (e.g., a book, CD or videocassette) – carries with it no interest in the copyright.⁸⁸

Ownership of a copyright, or any of the exclusive rights under a copyright, is distinct from ownership of any material object in which the work is embodied. Transfer of ownership of any material object, including the copy or phonorecord in which the work is first fixed, does not of itself convey any rights in the copyrighted work embodied in the object; nor, in the absence of an agreement, does transfer of ownership of a copyright or

87 17 U.S.C. § 204(a) (1988). An exclusive license is considered a transfer of copyright, and therefore must be in writing. Although an exclusive license may be limited in time or place or scope, it nevertheless extends the benefits of copyright ownership with respect to the rights granted to the licensee for the duration of the license. The rights of a copyright owner may also be licensed on a nonexclusive basis to one or more licensees. The Copyright Act does not require nonexclusive licenses to be in writing.

88 See 17 U.S.C. § 202 (1988).

of any exclusive rights under a copyright convey property rights in any material object.⁸⁹

Ownership, possession or any other attachment to or relationship with a copy of a copyrighted work (including obtaining access to it through a computer network or other service) does not entitle one to exercise any of the exclusive rights of the copyright owner (e.g., to reproduce it or distribute it).

a. TRANSFER OF OWNERSHIP

A copyright in a work is divisible; the exclusive rights of a copyright owner may be transferred in whole or in part.⁹⁰ A transfer of copyright ownership may occur through an assignment, exclusive license, mortgage "or any other conveyance, alienation, or hypothecation" of a copyright or any of the exclusive rights.⁹¹ A transfer of copyright ownership may be limited in time or in place, but it must be an exclusive transfer of whatever right or rights are involved (i.e., nonexclusive licenses are not considered transfers of ownership).⁹² Any of the exclusive rights in the work⁹³ may be

89 Id.

90 See 17 U.S.C. § 201(d)(1) (1988) ("The ownership of a copyright may be transferred in whole or in part by any means of conveyance or by operation of law, and may be bequeathed by will or pass as personal property by the applicable laws of intestate succession.").

91 17 U.S.C. § 101 (1988) (definition of "transfer of copyright ownership"). With the exception of transfers by operation of law, all transfers of copyright ownership must be in writing. 17 U.S.C. § 204(a) (1988) ("A transfer of copyright ownership, other than by operation of law, is not valid unless an instrument of conveyance, or a note or memorandum of the transfer, is in writing and signed by the owner of the rights conveyed or such owner's duly authorized agent.").

92 See 17 U.S.C. § 204(a) (1988).

93 See discussion of the exclusive rights of a copyright owner *infra* pp. 34-44.

separately transferred and owned, and the owner of a particular right is considered the "copyright owner" with respect to that right.⁹⁴

In the case of any copyrighted work other than a "work made for hire," all transfers of copyright ownership (as well as all nonexclusive licenses) executed by the author of the work may be terminated by the author after 35 years.⁹⁵ This right to terminate, intended to protect authors, cannot be waived by contract or other agreement.⁹⁶ However, termination is not automatic; an author must assert his or her termination rights and comply with certain statutory requirements to regain copyright ownership.⁹⁷

b. LICENSING

The exclusive rights of a copyright owner may be licensed on an exclusive basis (i.e., copyright ownership in one or more rights is transferred by the copyright owner) or on a nonexclusive basis (i.e., the copyright owner retains ownership of the copyright and may grant similar licenses to others). A nonexclusive licensee is not a copyright owner and thus does not have standing to sue for any infringement of the copyright in the work by others.⁹⁸ Unlike exclusive licenses, nonexclusive licenses need not be in writing.⁹⁹

94 See 17 U.S.C. § 201(d)(2) (1988); 17 U.S.C. § 101 (1988) (definition of "copyright owner").

95 See 17 U.S.C. § 203(a) (1988). See also 17 U.S.C. § 304(c) (1988 & Supp. V 1993).

96 17 U.S.C. § 203(a)(5) (1988) ("Termination of the grant may be effected notwithstanding any agreement to the contrary, including an agreement to make a will or to make any future grant.").

97 See 17 U.S.C. § 203(a) (1988).

98 See 17 U.S.C. § 501(b) (1988) ("The legal or beneficial owner of an exclusive right under a copyright is entitled . . . to institute an action for any infringement of that particular right committed while he or she is the owner of it."). In certain circumstances, television broadcast stations and others are treated as legal or beneficial owners and may bring actions for infringement by cable systems and satellite carriers. See 17 U.S.C. § 501(c), (d), (e) (1988).

Licensing issues are, and will continue to be, significant in the context of the development of the NII. Services on the NII will provide the opportunity for new uses for copyrighted works. If rights with respect to these new uses are not expressly granted or retained in license agreements, conflicts will arise between copyright owners and licensees. For instance, public display on a bulletin board system may not have been contemplated in licenses granting the public display right that were executed before the advent or proliferation of such systems. Failure to contemplate possible future developments, of course, is not a new problem, and is one based primarily in contract rather than copyright law. Whenever new technologies have produced a new use for works, courts have been called upon to decide whether the new use is covered by old licenses.¹⁰⁰

A variety of licensing methods will be possible as the NII develops. For instance, rights in copyrighted works offered via the NII may be licensed off-line or on-line. They may be licensed directly (through individual transactions between the rightsholder and the licensee) or through other licensing arrangements, such as voluntary collective licensing. Licensing of rights may be on a per-use, per-work or other basis.

99 However, like exclusive licenses, nonexclusive licenses are subject to termination after 35 years. See 17 U.S.C. §§ 203(a) (1988), 304(c) (1988 & Supp. V 1993).

100 See, e.g., Harper Bros. v. Klaw, 232 F. 609 (S.D.N.Y. 1916) (license to dramatize "Ben Hur" in a play did not include right to produce a movie, but licensor enjoined from producing movie because licensee's right to produce a play would be harmed by licensor's production of a movie); L.C. Page & Co. v. Fox Film Corp., 83 F.2d 196 (2d Cir. 1936) (grant of exclusive "moving picture" rights embraced technical improvements in movies that might be developed during the term of the license, thus license held to cover "talkies"); Bartsch v. Metro-Goldwyn-Mayer, Inc., 391 F.2d 150 (2d Cir.), cert. denied, 393 U.S. 826 (1968) (1930 license of film rights in a play, when television was a known technology but its full impact not yet realized, included television rights; as experienced businessman, licensor had reason to know of new technology's potential and had burden of negotiating exception).

The licensing of rights for the creation of multimedia works -- whose creators may wish to include dozens of preexisting works (or portions thereof) -- can be difficult. Because registration and copyright notices are not required for copyrighted works, identification of copyright owners alone can be complicated. The relative newness of the multimedia industry can result in an uncertainty on the part of copyright owners and multimedia creators with regard to appropriate terms and conditions for such uses.

3. TERM OF PROTECTION

Generally, a copyrighted work is protected for the length of the author's life plus another 50 years.¹⁰¹ In the case of joint works, copyright protection is granted for the length of the life of the last surviving joint author plus another 50 years.¹⁰² Works made for hire, as well as anonymous and pseudonymous works, are protected for a term of either 75 years from the year of first publication or 100 years from the year of creation, whichever is shorter.¹⁰³ When the term of protection for a copyrighted work expires, the work is said to "fall into the public domain."

4. EXCLUSIVE RIGHTS

The Copyright Act grants to the copyright owner of a work a bundle of exclusive rights:

¹⁰¹ See 17 U.S.C. § 302(a) (1988). The terms of protection for works created before January 1, 1978 (the effective date of the 1976 revisions to the Copyright Act) are set forth in Sections 303 and 304 of the Act. See 17 U.S.C. §§ 303, 304 (1988 & Supp. V 1993).

¹⁰² 17 U.S.C. § 302(b) (1988).

¹⁰³ 17 U.S.C. § 302(c) (1988). The term for anonymous or pseudonymous works differs if the identity of one or more of the authors is revealed before the end of the term of protection. See *id.*

- (1) to reproduce the copyrighted work in copies or phonorecords;
- (2) to prepare derivative works based upon the copyrighted work;
- (3) to distribute copies or phonorecords of the copyrighted work to the public by sale or other transfer of ownership, or by rental, lease, or lending;
- (4) in the case of literary, musical, dramatic, and choreographic works, pantomimes, and motion pictures and other audiovisual works, to perform the copyrighted work publicly; and
- (5) in the case of literary, musical, dramatic, and choreographic works, pantomimes, and pictorial, graphic, or sculptural works, including the individual images of a motion picture or other audiovisual work, to display the copyrighted work publicly.¹⁰⁴

These rights, in most instances, have been well elaborated by Congress and the courts. For the most part, the provisions of the current copyright law can serve the needs of creators, owners, distributors and users of copyrighted works in the NII environment. In certain instances, small changes in the law may be necessary to optimize the intellectual property component of the NII.

a. THE RIGHT TO REPRODUCE THE WORK

This fundamental right -- to reproduce copyrighted works in copies and phonorecords¹⁰⁵ -- appears likely to be implicated in

104 17 U.S.C. § 106 (1988 & Supp. V 1993). Section 106(A) grants additional rights for certain works of visual art in single copies or limited editions. The development of the NII does not raise unique issues with respect to those rights. See 17 U.S.C. § 106(A) (Supp. V 1993).

105 See definitions of "copies" and "phonorecords" *supra* pp. 12-13.

innumerable NII transactions. Indeed, because of the nature of computer-to-computer communications, it appears to be a right that will be implicated in most NII transactions. For example, when a computer user simply "browses" a document resident on another computer, the image on the user's screen exists -- under contemporary technology -- only by virtue of the copy that has been reproduced in the user's computer memory. It has long been clear under U.S. law that the placement of a work into a computer's memory amounts to a reproduction of that work (because the work may be, in the law's terms, "perceived, reproduced, or . . . communicated . . . with the aid of a machine or device").

In each of the instances set out below, one or more copies¹⁰⁶ is made, and, necessarily, in the absence of a proof of fair use or other relevant defense,¹⁰⁷ there is an infringement of the reproduction right:¹⁰⁸

106 This Report uses the term "copy" or "copies" to refer to copies and phonorecords except in those instances where the distinction is relevant.

107 One of the important aspects of defining a transaction as a "reproduction" rather than something else is that the potentially relevant exceptions to the reproduction right are substantially fewer in number than those that apply to certain other rights, particularly "distribution" and "public performance." A detailed discussion of fair use and other statutory exemptions appears in later sections of this Report.

108 In some instances, the locus of the infringement and/or the identification of the infringing party or parties may require analysis not required with respect to "traditional" infringements, but this would not appear to be a sufficient reason to reject the application of "reproduction" analysis (coupled, where appropriate, with creative examination of locus/party issues, and, perhaps, clarification of the "contributory infringement" doctrine. Contributory liability for copyright infringement may be imposed on persons not themselves performing the proscribed acts, but either deriving direct benefits from them or providing equipment or materials that may only be used in furtherance of an infringement. See discussion of contributory infringement and vicarious liability infra pp. 73-82.

- When a work is placed into a computer, whether on a disk, diskette, ROM, or other storage device or in RAM for more than a very brief period, a copy is made.
- When a printed work is "scanned" into a digital file, a copy -- the digital file itself -- is made.
- When other works -- including photographs, motion pictures, or sound recordings -- are digitized, copies are made.
- Whenever a digitized file is "uploaded" from a user's computer to a bulletin board system or other server, a copy is made.
- Whenever a digitized file is "downloaded" from a BBS or other server, a copy is made.
- When a file is transferred from one computer network user to another, multiple copies are made.¹⁰⁹
- Under current technology, when a user's computer is being used as a "dumb" terminal to "look at" a file resident on another computer (such as a BBS or Internet host), a copy of the portion viewed is made in the user's computer. (Without such copying into the RAM or buffer of the user's computer, no screen display would be possible.) As long as the amount viewed is more than de minimis, it is an infringement unless authorized or specifically exempt.

b. THE RIGHT TO PREPARE DERIVATIVE WORKS

The copyright law grants copyright owners the right to control the abridgment, adaptation, translation, revision or other

¹⁰⁹ For example, if a PTO employee transfers a file (such as a hearing announcement) to another person with an Internet account, copies will typically, at a minimum, be made (a) in the PTO's Internet server, (b) in the recipient's Internet server, and (c) in the recipient's microcomputer.

"transformation" of their works.¹¹⁰ A user who modifies -- by annotating, editing, translating or otherwise significantly changing -- the contents of a downloaded file creates a derivative work. (Although the law does not provide an exemption for the purely private creation of derivative works for personal use, such acts are largely undetectable by the law unless and until the derivative work is reproduced, distributed, publicly performed or publicly displayed.)

c. THE RIGHT TO DISTRIBUTE COPIES

Before addressing issues raised by the distribution right in the context of the NII, it is necessary to understand its application and shortcomings with respect to conventional modes of exploitation and infringement.

The right to distribute copies of works is substantially circumscribed by the "first sale" doctrine set out in Section 109(a):

Notwithstanding the provisions of section 106(3), the owner of a particular copy or phonorecord lawfully made under this title, or any person authorized by such owner, is entitled, without the authority of the copyright owner, to sell or otherwise dispose of the possession of that copy or phonorecord.¹¹¹

This doctrine limits copyright owners' rights by making only the initial distribution of a particular copy of a copyrighted work subject to their control.

110 See 17 U.S.C. § 106(2) (1988). "A 'derivative work' is a work based upon one or more preexisting works, such as a translation, musical arrangement, dramatization, fictionalization, motion picture version, sound recording, art reproduction, abridgment, condensation, or any other form in which a work may be recast, transformed, or adapted. A work consisting of editorial revisions, annotations, elaborations, or other modifications which, as a whole, represent an original work of authorship, is a 'derivative work.'" 17 U.S.C. § 101 (1988) (definition of "derivative work").

111 17 U.S.C. § 109(a) (1988).

The first sale doctrine's importance in the NII context should not be underestimated: if a transaction by which a user obtains a "copy" of a work is characterized as a "distribution," then, under the current law, the user may be entitled to make a like distribution without the copyright owner's permission (and without liability for infringement).¹¹² This may demonstrate the unintended consequence of characterizing many electronic disseminations as "distributions." Indeed, the system encompassed by Sections 106(3) and 109(a) appears to "fit" only "conventional" transactions in which possessory interests in tangible copies are conveyed in the first instance, for example, from publisher to wholesaler (exclusive distribution right applies) and thereafter from wholesaler to retailer (first sale doctrine denies publisher any control), from retailer to user (first sale doctrine denies publisher any control), and from user to user (first sale doctrine denies publisher any control). Electronic disseminations, by contrast, typically involve the proliferation of copies, with the "publisher" retaining its copy and the user acquiring a new one. This suggests that, under the current law, the reproduction right, rather than the distribution right, may be both more logically applicable and more legally appropriate (by virtue of its more limited exceptions).¹¹³

112 "Conventional" analysis would entitle the user to dispose of his or her copy by conventional means, such as giving it or selling it to a third party, so that the user had no copy at the end of the transaction. If, however, one characterizes as a "distribution" the transaction that begins with a digitized copy in a host's computer, and concludes with a digitized copy in the host's computer and a digitized copy in the user's computer, then the user would appear privileged to serve as a host for another user under the umbrella of the first sale doctrine.

113 Furthermore, with respect to international distributions, Section 602 of the law makes unauthorized importations a violation of the distribution right. However, it also contains three exceptions to the right, and courts are divided as to whether the first sale doctrine limits the ability of copyright owners to enforce the importation right (as it does with respect to the domestic distribution right). See 17 U.S.C. § 602(a) (1988) (subsection does not apply to "(1) importation of copies or phonorecords under the authority or for the use of the Government of the United States or of any State or political subdivision of a State, but not including copies or phonorecords for use in schools, or copies of any audiovisual work imported for purposes other than archival use;

One court decision has construed the unauthorized downloading of digitized photographic images by BBS subscribers as implicating the distribution right.¹¹⁴ The court's discussion in Playboy Enterprises Inc. v. Frena¹¹⁵ reflects some uncertainty over the meaning and scope of the various rights provided in Section 106:

Public distribution of a copyrighted work is a right reserved to the copyright owner, and usurpation of that right constitutes infringement [Playboy Enterprise's] right under 17 U.S.C. §106 to distribute copies to the public has been implicated by Defendant Frena [the bulletin board service operator]. Section 106(3) grants the copyright owner "the exclusive right to sell, give away, rent or lend any material embodiment of his work." There is no dispute that Defendant Frena supplied a product containing unauthorized copies of a copyrighted work. It does not matter that Defendant Frena claims it did not make the copies itself.¹¹⁶

(2) importation, for the private use of the importer and not for distribution, by any person with respect to no more than one copy or phonorecord of any one work at any one time, or by any person arriving from outside the United States with respect to copies or phonorecords forming part of such person's personal baggage; or (3) importation by or for an organization operated for scholarly, educational, or religious purposes and not for private gain, with respect to no more than one copy of an audiovisual work solely for its archival purposes, and no more than five copies or phonorecords of any other work for its library lending or archival purposes, unless the importation of such copies or phonorecords is part of an activity consisting of systematic reproduction or distribution, engaged in by such organization in violation of the provisions of section 108(g)(2)"; compare BMG Music v. Perez, 952 F.2d 318 (9th Cir. 1991) (first sale doctrine does not apply to importation rights under Section 602) with Sebastian Int'l. Inc. v. Consumer Contacts (PTY) Ltd., 847 F.2d 1093 (3d Cir. 1988) (contra).

114 The court elsewhere in its opinion uses "implicate" to mean "infringe."

115 839 F. Supp. 1552 (M.D. Fla. 1993).

116 Id. at 1556.

The court appears to have glossed over the reproduction right, apparently because of its uncertainty whether the operator of the bulletin board system could be held to have reproduced a work that was (a) uploaded by one subscriber and (b) downloaded by another. (As discussed below, the BBS operator publicly displayed the works by the same conduct, and was found liable by the court for infringing the display right.)

Whether the litigants in Playboy put the issue properly in dispute or not, the right to distribute copies of a work has traditionally covered the right to convey a possessory interest in a tangible copy of the work. Indeed, the first sale doctrine implements the common law's abhorrence of restraints on alienation of property by providing that the distribution right does not generally prevent owners of lawfully made copies from alienating them in a manner of their own choosing.¹¹⁷ It is clear that a Frena subscriber, at the end of a transaction, possessed a copy of a Playboy photograph, but it is rather less clear whether, under the current law, Frena "distributed" that photograph or the subscriber "reproduced" it (and, if the latter, whether current law clearly would have made Frena contributorily liable for the unauthorized reproduction.)¹¹⁸

In a similar case, Sega Enterprise Ltd. v. MAPHIA,¹¹⁹ a court, on a motion for a preliminary injunction, made findings of fact regarding (a) the use of a bulletin board system to "make and distribute" copies of copyrighted video games, (b) the "unauthorized

117 Owners of copyrights in computer programs and sound recordings have the right to control post-first-sale rentals of copies of their works; owners of copyrights in works fixed in other media do not. See 17 U.S.C. § 109 (1988 & Supp. V 1993). This inconsistency may be important in the NII context, particularly with respect to "multimedia works" that are not expressly or self-evidently in any particular category of copyrighted work (and whose treatment under various exemptions and special provisions may be unclear). See discussion of multimedia works supra pp. 24-27.

118 See discussion of contributory infringement and vicarious liability infra pp. 73-82.

119 No. C 93-4262 CW, 1994 U.S. Dist. LEXIS 5266 (N.D. Cal. Mar. 28, 1994).

copying and distribution" of the games on the bulletin board, and (c) the profits made by the defendant from the "distribution" of the games on the bulletin board.¹²⁰ The court's conclusions of law, however, did not specify infringement of the distribution right.¹²¹

d. THE RIGHT TO PERFORM THE WORK PUBLICLY

The public performance right is available to all types of "performable" works -- literary, musical, dramatic, and choreographic works, pantomimes, motion pictures, and other audiovisual works -- with the exception of sound recordings.¹²² While some have urged that many NII transactions be characterized as "performances," it is important to understand:

- the definition of "perform" in the copyright law,¹²³
- that only "public" performances are covered by the copyright law,¹²⁴ and

¹²⁰ *Id.* at *8-9.

¹²¹ The court stated that Sega had established that unauthorized copies of its games are made when they are uploaded to the bulletin board and when they are downloaded. *Id.* at *17.

¹²² See 17 U.S.C. § 106(4) (1988).

¹²³ "To 'perform' a work means to recite, render, play, dance, or act it, either directly or by means of any device or process or, in the case of a motion picture or other audiovisual work, to show its images in any sequence or to make the sounds accompanying it audible." 17 U.S.C. § 101 (1988) (definition of "perform").

¹²⁴ To perform or display a work "publicly" means --

- (1) to perform or display it at a place open to the public or at any place where a substantial number of persons outside of a normal circle of a family and its social acquaintances is gathered; or
- (2) to transmit or otherwise communicate a performance or display of the work to a place specified by clause (1) or to the public, by means of any device or process, whether the members of the public capable of receiving the performance or display

- the limitations set out in the statute that render the performance right ineffective in a variety of circumstances (mostly of a nonprofit nature).¹²⁵

A distinction must be made between transmissions of copies of works, transmissions of performances of works, and performances of works in the NII context. When a copy of a work is transmitted over wires or satellite signals in digital form so that it may be captured in a user's computer, without being "rendered" or "shown," it has rather clearly not been performed. Thus, for example, a file comprising the digitized version of a motion picture might be transferred via the Internet without the public performance right being implicated. When, however, the motion picture is literally "rendered" -- by showing its images in sequence -- so that users with the requisite hardware and software might watch it with or without copying the performance, then, under the current law, a "performance" has occurred.

The "public" nature of a performance -- which brings it within the scope of copyright -- is sufficiently broadly defined to apply to multiple individual viewers who may watch a work being performed in a variety of locations at several different times. Courts have repeatedly imposed public performance infringement liability upon entities that, for example, develop novel modes of delivering motion picture performances to customers (and novel legal arguments as to why their performances are not "public").¹²⁶

receive it in the same place or in separate places and at the same time or at different times.

17 U.S.C. § 101 (1988) (definition of "publicly").

125 See 17 U.S.C. § 110 (1988).

126 See, e.g., Columbia Pictures Indus. v. Redd Horne, Inc., 749 F.2d 154 (3d Cir. 1984) (video store operator liable for public performance violation where he rented tapes to customers and provided semi-private screening rooms where the tapes could be viewed); Columbia Pictures Indus. v. Aveco, Inc., 800 F.2d 59 (3d Cir. 1986) (same result where customers also rented rooms for viewing); and On Command Video Corp. v. Columbia Pictures Indus., 777 F. Supp. 787 (N.D. Cal. 1991) (infringement found where hotel guests in rooms selected

e. THE RIGHT TO DISPLAY THE WORK PUBLICLY

The right to display a work publicly is extremely significant in the context of the NII. The analyses that attend the determination of whether a particular transmission might amount to a "distribution" or a "performance" are rarely necessary. To display a work means to "show a copy of it, either directly or by means of a . . . television image, or any other device or process . . ." ¹²⁷ The definition of "display" clearly encompasses the behavior of, for instance, the defendant BBS operator in the Playboy case. ¹²⁸ Thus, when any NII user visually "browses" through copies of works in any medium (but not through a list of titles or other "menus" that are not copies of the works), ¹²⁹ a public display occurs. A display is "public" on the same terms as a "performance"; therefore, virtually all NII uses would appear to fall within the law's current comprehension of "public display."

5. LIMITATIONS ON THE EXCLUSIVE RIGHTS

The exclusive rights of copyright owners are not without exception. The Copyright Act specifies certain violations of a copyright owner's exclusive rights that the copyright owner cannot prevent. ¹³⁰

tapes to be played on remote control console in hotel basement with signal then sent to rooms).

127 17 U.S.C. § 101 (1988 & Supp. V 1993) (definition of "display").

128 See discussion of Playboy case *supra* pp. 40-41.

129 Of course, to the extent that such lists or menus are protectible under the Copyright Act, the authors of such lists would have the exclusive right to publicly display them.

130 Although sometimes referred to as "rights" of the users of copyrighted works, "fair use" and other exemptions from copyright infringement are actually limitations on the rights of the copyright owners. Users are not granted any affirmative "rights" under the Copyright Act; rather, copyright

a. FAIR USE

The most significant and, perhaps, murky of the limitations on a copyright owner's exclusive rights is the doctrine of fair use.¹³¹

Fair use is an affirmative defense¹³² to any action for copyright infringement. It is potentially available with respect to all unauthorized uses of works in all media. If it is proven, then the use may continue without any obligation on the user's part to seek the permission of the copyright owner, pay royalties, or the like. The doctrine of fair use is rooted in some 200 years of judicial decisions and is, in general, most likely to be found when a user incorporates some of a pre-existing work into a new work of authorship.¹³³ It is thus widely accepted, for example, that quotation from a book or play by a reviewer, or the capturing of copyrighted music in a television news broadcast is fair use. As one moves away from such favored uses into the area of uses that are – for practical purposes – competitive with the copyright owner's exploitation of the work, the ease of analysis shrinks (as the number of litigated cases grows).

owners' rights are limited by certain exemptions from user liability. It has been argued, however, that the Copyright Act would be unconstitutional if such limitations did not exist, as they provide some alleviation of First Amendment and other concerns.

131 See 17 U.S.C. § 107 (1988 & Supp. V 1993). The judicially created doctrine, although now codified in the Copyright Act, has been described as "so flexible as virtually to defy definition." See *Time Inc. v. Bernard Geis Assoc.*, 293 F. Supp. 130, 144 (S.D.N.Y. 1968).

132 As an affirmative defense, the burdens of persuasion and coming forward with evidence both must be carried by defendants in order to avoid liability, i.e., a copyright owner need not prove an accused use not fair, but a defendant must prove its fairness.

133 In the recent case of *Campbell v. Acuff-Rose Music, Inc.*, 114 S. Ct. 1164 (1994), the Supreme Court expressly accepted the proposition that such "transformative" uses are more favored in fair use analyses than uses that amount to little more than verbatim copying.

Before examining the doctrine developed by the courts, it is useful to examine the statutory language concerning fair use. Section 107 of the Copyright Act provides:

Notwithstanding the provisions of sections 106 and 106A, the fair use of a copyrighted work, including such use by reproduction in copies or phonorecords or by any other means specified by that section, for purposes such as criticism, comment, news reporting, teaching (including multiple copies for classroom use), scholarship, or research, is not an infringement of copyright. In determining whether the use made of a work in any particular case is a fair use the factors to be considered shall include —

- (1) the purpose and character of the use, including whether such use is of a commercial nature or is for nonprofit educational purposes;
- (2) the nature of the copyrighted work;
- (3) the amount and substantiality of the portion used in relation to the copyrighted work as a whole; and
- (4) the effect of the use upon the potential market for or value of the copyrighted work.

The fact that a work is unpublished shall not itself bar a finding of fair use if such finding is made upon consideration of all the above factors.¹³⁴

The language may usefully be divided into two parts: the introduction, which is largely tautological ("fair use . . . is not an infringement of copyright"), and the analysis required by the second sentence. The recitation of assorted uses in the middle of the first

134 17 U.S.C. § 107 (1988 & Supp. V 1993).

sentence has been held neither to create a presumption that such uses are fair¹³⁵ nor to prevent a fair use analysis from being applied to other "unlisted" uses.

The core of Section 107 is the second sentence, in which Congress elaborates a test little different from that articulated by Justice Story more than a century ago.¹³⁶ It is clear that courts must evaluate all four factors in determining whether a particular use is fair, but may also take into account unenumerated "extra" factors, when appropriate.

THE PURPOSE AND CHARACTER OF THE USE

Although, as discussed below, the fourth factor has repeatedly been held to be the most important, the first factor often plays a major role in determining the result when a defendant asserts a fair use defense.

The first factor contrasts "commercial" uses with "nonprofit educational" uses. There is, of course, a continuum between these two opposites, with most uses not falling neatly into either the favored or disfavored pigeonhole. The weight of the factor may be inferred from the Supreme Court's very limited fair use jurisprudence: In the four fair use cases that it has decided, one noncommercial noneducational use was held fair,¹³⁷ two commercial uses were held unfair,¹³⁸ and one commercial use was held potentially fair.¹³⁹

135 Harper & Row, Publishers, Inc. v. Nation Enters., 471 U.S. 539, 561 (1985).

136 Justice Story stated that courts should "look to the nature and the objects of the selections made, the quantity and value of the material used, and the degree in which the use may prejudice the sale, or diminish the profits, or supersede the objects, of the original work." Folsom v. Marsh, 9 F. Cas. 342, 348 (C.C.D. Mass. 1841)(No. 4,901).

137 See Sony, *supra* note 7, at 456 (videotaping by individuals at home of off-the-air television broadcast programming for purpose of "time-shifting" -- as distinguished from "librarying" -- held fair use).

138 See Stewart v. Abend, 495 U.S. 207, 216 (1990) (theatrical and television distribution of motion picture over objection of owner of renewal term in

In the Sony case, the Court announced a "presumption" that helps explain courts' near universal rejection of fair use claims in commercial contexts. It declared that all commercial uses were to be presumed unfair, thus placing a substantial burden on a defendant asserting that a particular commercial use is fair. The Campbell case made clear that the Sony presumption was of greatest applicability in the context of verbatim copying, thus giving greater leeway to commercial but transformative uses.

Indeed, "mere reproduction" has fared very badly in court under the Copyright Act, even in actual and ostensible educational contexts. Courts have denied fair use, for example, to:

- a teacher's reproduction, in text materials, of the copyrighted material of another teacher,¹⁴⁰
- a school system's practice of taping educational broadcasts for later use in classrooms,¹⁴¹ and
- off-campus copy shops' manufacture -- to teachers' specifications -- and distribution of photocopies of anthologies containing portions of textbooks and periodicals.¹⁴²

underlying short story held infringing); Harper & Row, *supra* note 135, at 569 ("Nation" magazine's scoop of "Time" magazine's first serial rights in President Ford's memoirs held infringing, notwithstanding newsworthiness of the account of the Nixon pardon set out therein).

139 See Campbell, *supra* note 133, at 1177-79 (parodic lyrics of popular song not *per se* unfair by virtue of commercial purpose of parody; case remanded for further factual determination).

140 Marcus v. Rowley, 695 F.2d 1171 (9th Cir. 1983).

141 Encyclopaedia Britannica Educational Corp. v. Crooks, 558 F. Supp. 1247 (W.D.N.Y. 1983).

142 Basic Books, Inc. v. Kinko's Graphics Corp., 758 F. Supp. 1522 (S.D.N.Y. 1991).

Taken together, these cases indicate that, for the most part, educational fair use is limited to the type of copying expressly authorized in the "classroom guidelines," a part of the legislative history incorporating provisions to which copyright owners and educators agreed.¹⁴³

THE NATURE OF THE COPYRIGHTED WORK

This second factor tends to play a smaller role than the first in fair use litigation. Courts have held that it weighs in the copyright owner's favor when works of fiction¹⁴⁴ and unpublished works¹⁴⁵ are copied, and in defendant's favor when factual works¹⁴⁶ and published works¹⁴⁷ are copied.

143 See House Report at 68-74, reprinted in 1976 U.S.C.C.A.N. 5681-88. The guidelines generally permit the copying, for classroom purposes, of short extracts of works, provided that the copying is spontaneously done or requested by the instructor (and the copies are neither used nor re-made repeatedly over time).

144 See Twin Peaks Prods., Inc. v. Publications Int'l. Ltd., 996 F.2d 1366, 1376 (2d Cir. 1993).

145 See New Era Publications Int'l. ApS v. Henry Holt & Co., 684 F. Supp. 808 (S.D.N.Y. 1988), cert. denied, 493 U.S. 1094 (1990). The 1992 amendment to Section 107, clarifying that the "fact that a work is unpublished shall not itself bar a finding of fair use if such finding is based upon consideration of all the above factors," was intended, however, to "overrule the overly restrictive language of Salinger [Salinger v. Random House, 811 F.2d 90 (2d Cir.), cert. denied, 484 U.S. 890 (1987)] and New Era with respect to the use of unpublished materials . . ." See S. Rep. No. 102-141, 102d Cong., 1st Sess., at 5. According to some members of Congress, those two cases "threatened to establish a virtual per se rule against the fair use of any published materials, such as letters or diaries." See 138 Cong. Rec. S17,358 (daily ed. Oct. 7, 1992) (Statement by Senators Simon, Leahy, Kennedy, Grassley, Metzenbaum, and Kohl).

146 See National Rifle Ass'n v. Handgun Control Fed'n, 15 F.3d 559, 562 (6th Cir. 1994).

147 See New Era Publications Int'l. ApS v. Carol Publishing Group, 904 F.2d 152, 157 (2d Cir. 1990).

THE AMOUNT AND SUBSTANTIALITY OF THE PORTION USED

This is probably the least important factor, given that the taking of even a small amount -- if it is considered the "heart" of the work -- can lead to a finding of infringement.¹⁴⁸ Indeed, the most cited copyright treatise devotes only some four sentences to its discussion:

The third factor listed in § 107 is "the amount and substantiality of the portion used in relation to the copyrighted work as a whole." This raises an issue discussed in a preceding section [concerning the quantum of copying that constitutes infringement], and may be regarded as relating to the question of substantial similarity rather than whether the use is "fair." This includes a determination of not just quantitative, but also qualitative substantiality. In any event, whatever the use, generally it may not constitute a fair use if the entire work is reproduced.¹⁴⁹

THE EFFECT OF THE USE

Courts have repeatedly identified this as the most important of the four factors.¹⁵⁰ It is important to recall that it weighs against a defendant not only when a current market exists for a particular use, but also when a potential market could be exploited by the copyright owner. Harm in either market will, in most instances, render a use unfair.¹⁵¹

148 See Harper & Row, *supra* note 135, at 569 (taking of some 300 words held infringing).

149 3 Melville B. & David Nimmer, Nimmer on Copyright § 13.05[A] (1993) (hereinafter Nimmer on Copyright).

150 See Stewart v. Abend, *supra* note 138, at 238.

151 See Salinger v. Random House, Inc., 811 F.2d 90, 99 (2d Cir.), *cert. denied*, 484 U.S. 890 (1987) (protecting potential market for author's letters notwithstanding his profound disinclination ever to publish them).

The Supreme Court's decisions demonstrate the significant weight given this factor:

- In Sony, the absence of any market for home taping licenses, combined with the testimony of some copyright owners that they were indifferent to home copying, led the Court to conclude that there was no cognizable harm.¹⁵²
- In Harper & Row, the Court accepted the argument that the "scooping" of "Time" magazine's right to make the first serial publication of President Ford's memoirs, which caused cancellation of the magazine's contract with Harper & Row, caused harm to the copyright owner.¹⁵³
- In Stewart, performances of the movie palpably harmed the economic interests of the owner of the copyright in the underlying short story.¹⁵⁴
- In Campbell, the Court – because the parody was "transformative" – rejected the court of appeals' determination that the commercial purpose of the parody required its creator to overcome Sony's presumption of market harm.¹⁵⁵

It is reasonable to expect that courts would approach claims of fair use in the context of the NII just as they do in "traditional" environments. Commercial uses that involve no "transformation" by users will likely always be infringing, while nonprofit educational transformative uses will likely often be fair. Between these extremes, courts will have to engage in the same type of fact-intensive analysis that typifies fair use litigation and frustrates those

152 See Sony, *supra* note 7, at 443-47.

153 See Harper & Row, *supra* note 135, at 562.

154 See Stewart, *supra* note 138, at 238.

155 See Campbell, *supra* note 133, at 1173.

who seek "bright lines" clearly separating the lawful from the infringing.¹⁵⁶

Courts in two cases decided to date concerning the unauthorized "uploading" and "downloading" of copyrighted materials have held that such uses were not fair uses.¹⁵⁷ In the Playboy case, the court characterized the issue as whether "unrestricted and widespread conduct of the sort engaged in by the defendant bulletin board system operator (whether in fact engaged in by the defendant or others) would result in a substantially adverse impact on the potential market for or value of [Playboy's copyrighted photographs],"¹⁵⁸ and determined that it would. This, in turn, led the court to conclude that there was market harm, and, thus, infringement.

In the other case, Sega Enterprise Ltd. v. MAPHIA,¹⁵⁹ the court found that Sega established a prima facie case of direct and contributory infringement in the operation of the defendant's bulletin board system (where Sega's copyrighted video game programs were uploaded and downloaded).¹⁶⁰ In issuing a preliminary injunction, the court found that each of the four factors weighed against a finding of fair use, but found that the fourth factor, in particular, weighed "heavily" against such a finding:

156 The inability of our common law system always to provide guidance covering every possible permutation of behavior is not necessarily a weakness. By permitting courts to reach decisions on a case-by-case basis, our system permits both necessary gap-filling and jurisprudential evolution without having to return to Congress for additional elaboration on a frequent basis.

157 See supra notes 114-18 and accompanying text (discussing Playboy decision).

158 Playboy, 839 F. Supp. at 1558.

159 Supra note 119.

160 Id. at *16-17.

Based on Defendant's own statement that 45,000 bulletin boards like MAPHIA operate in this country, it is obvious that should the unauthorized copying of Sega's video games by Defendants and others become widespread, there would be a substantial and immeasurable adverse effect on the market for Sega's copyrighted video game programs.¹⁶¹

Cases already decided in other contexts will give valuable guidance to courts confronted with NII-related cases. Just as courts have distinguished between home use of a VCR to make time-shifting tapes of materials broadcast over the air (fair use) and school systems' attempts to use VCRs to download broadcast instructional materials for the creation of an educational film library (not fair use), courts will subject users of copyrighted works available via the NII to like scrutiny. Educational uses that serve the same ends and are constrained in the same manner as the copying permitted under the Classroom Guidelines may be fair, while attempts to supplant the market for books, films, software and other materials by proliferating them without permission via the NII will likely be infringing.

Finally, it may be that technological means of tracking transactions and licensing will lead to reduced application and scope of fair use. Thus, one sees in American Geophysical Union v. Texaco Inc.,¹⁶² a court establishing liability for the unauthorized photocopying of journal articles based in part on the court's perception that obtaining a license for the right to make photocopies via the Copyright Clearance Center was not unreasonably burdensome.

b. FIRST SALE DOCTRINE

A fundamental tenet of copyright law, and another limitation on the exclusive rights, is the "first sale doctrine," which prevents an owner of copyright in a work from controlling subsequent transfers

¹⁶¹ Id. at *22.

¹⁶² 802 F. Supp. 1 (S.D.N.Y. 1992).

of copies of that work. Once the copyright owner has transferred ownership of a particular copy (a material object) embodying the work, the copyright owner's exclusive right to distribute copies of the work is "extinguished" with respect to that copy.¹⁶³

Section 109(a) of the Copyright Act provides:

Notwithstanding the provisions of section 106(3) [which grants copyright owners the exclusive right to distribute copies or phonorecords of a work], the owner of a particular copy or phonorecord lawfully made under this title, or any person authorized by such owner, is entitled, without the authority of the copyright owner, to sell or otherwise dispose of the possession of that copy or phonorecord.¹⁶⁴

This limitation on the copyright owner's distribution right allows wholesalers who buy books to distribute those copies to retailers and retailers to sell them to consumers and consumers to give them to friends and friends to sell them in garage sales and so on -- all without the permission of (or payment to) the copyright owner of the work.¹⁶⁵ The first sale doctrine does not allow the transmission of a work (through a computer network, for instance), because a transmission would necessarily also involve a reproduction of the work (which would not be exempt under Section 109). Moreover, a transmission does not appear to constitute a distribution of a copy under the current law.¹⁶⁶

163 See T.B. Harms Co. v. Jem Records, Inc., 655 F. Supp. 1575, 1582 (D.N.J. 1987); Columbia Pictures Indus., Inc. v. Aveco, Inc., 612 F. Supp. 315, 319-20 (M.D. Pa. 1985), aff'd, 800 F.2d 59 (3d Cir. 1986).

164 17 U.S.C. § 109(a) (1988).

165 The reproduction right is not affected by the first sale doctrine; the owner of a particular copy of a copyrighted work may distribute it freely, but may not reproduce it.

166 See discussion of the distribution right supra pp. 38-42.

The first sale doctrine allows the owner of a particular copy of a work to "dispose" of possession of that copy in any way -- for example, by selling it, leasing it, loaning it or giving it away. However, there is an exception to this exemption with respect to two types of works -- sound recordings and computer programs. The owner of a particular copy of a computer program or a particular phonorecord of a sound recording may not rent, lease or lend that copy or phonorecord for the purpose of direct or indirect commercial advantage.¹⁶⁷ These exceptions were enacted because of the ease with which reproductions of those works can be made at a lower cost than the original with minimum degradation in quality.¹⁶⁸ The rationale for these exceptions may apply to other types of works as more types of works become available in digital format, and the "nexus" of rental and reproduction of those works "may directly and adversely affect the ability of copyright holders to exercise their reproduction and distribution rights under the Copyright Act."¹⁶⁹

A copyright owner's exclusive right to publicly display copies of a work is also limited by Section 109:

Notwithstanding the provisions of section 106(5) [which grants copyright owners the exclusive right to display

167 See 17 U.S.C. § 109(b)(1)(A) (Supp. V 1993). The prohibition with respect to record rental does not apply to nonprofit libraries or nonprofit educational institutions for nonprofit purposes. *Id.* Nonprofit libraries may also lend a computer program for nonprofit purposes if each copy has a copyright warning affixed to the package. 17 U.S.C. § 109(b)(2)(A) (Supp. V 1993). The prohibition with respect to computer program rental does not apply to a computer program "which is embodied in a machine or product and which cannot be copied during the ordinary operation or use of the machine or product" or "a computer program embodied in or used in conjunction with a limited purpose computer that is designed for playing video games and may be designed for other purposes." 17 U.S.C. § 109(b)(1)(B) (Supp. V 1993).

168 Kenneth R. Corsello, *Note*, The Computer Software Rental Amendments Act of 1990: Another Bend in the First Sale Doctrine, 41 *Cath. U. L. Rev.* 177, 192 (1991).

169 See H.R. Rep. No. 98-987, 98th Cong., 2d Sess. 2 (1984), *reprinted in* 1984 U.S.C.C.A.N. 2898, 2899 (justifying the Record Rental Amendment of 1984).

publicly copies of a work], the owner of a particular copy lawfully made under this title, or any person authorized by such owner, is entitled, without the authority of the copyright owner, to display that copy publicly, either directly or by the projection of no more than one image at a time, to viewers present at the place where the copy is located.¹⁷⁰

Thus, an art gallery that purchases a painting may publicly display it without liability. The owner of a particular copy of an electronic audiovisual game intended for use in coin-operated equipment may also publicly perform or display that game in that equipment.¹⁷¹

This exemption from liability would not apply to the public display of a copy of a work on a bulletin board system or other computer or communications network, as more than one image would likely be displayed at a time (to different viewers) and viewers would not be "present at the place where the copy is located."

c. LIBRARY EXEMPTIONS

The Copyright Act provides that in certain circumstances and under certain conditions it is not an infringement of copyright for a library or archives, or its employees acting within the scope of their

170 17 U.S.C. § 109(c) (1988).

171 Section 109(e) reversed the decision in Red Baron-Franklin Park, Inc. v. Taito Corp., 883 F.2d 275 (4th Cir. 1989), cert. denied, 110 S.Ct. 869 (1990), which held that video games could not be operated in an arcade without the permission of the copyright owner because such operation entailed violation of the copyright owner's exclusive rights to perform and display the work publicly. Section 109(e), however, does not allow the public display or performance of any other work of authorship embodied in the audiovisual game if the copyright owner of the game is not also the copyright owner of the other work. See 17 U.S.C. § 109(e) (Supp. V 1993).

employment,¹⁷² to reproduce or distribute one copy or phonorecord of a work.¹⁷³ The conditions of the library exemption are that (1) the reproduction or distribution is made without any purpose of direct or indirect commercial advantage; (2) the collections of the library are open to the public or available not only to researchers affiliated with the library, but also to other persons doing research in a specialized field; and (3) the reproduction or distribution of the work includes a notice of copyright.¹⁷⁴

The circumstances under which a library may reproduce or distribute a copyrighted work without infringement liability include:

ARCHIVAL COPIES

A library may reproduce and distribute a copy or phonorecord of an unpublished work reproduced in facsimile form if the sole purpose is preservation and security, and if the copy or phonorecord reproduced is currently in the collection of the library.¹⁷⁵ The House Report notes that this right "would extend to any type of work, including photographs, motion pictures and sound recordings." However, the copy or phonorecord made must be in "facsimile form." A library may "make photocopies of manuscripts by microfilm or electrostatic process, but [may] not reproduce the work in 'machine-readable' language for storage in an information system."¹⁷⁶ Thus, this exemption does not appear to allow for preservation in electronic or digital form, which, arguably, would not constitute

172 Hereinafter, the term "library" will be used to refer to a library or archives, or any of its employees acting within the scope of their employment.

173 See 17 U.S.C. § 108(a) (1988). Section 108 limitations are additional exemptions provided specifically for libraries. Libraries, of course, may also take advantage of the fair use or any other exemptions of the Copyright Act. See 17 U.S.C. § 108(f)(4) (1988).

174 See 17 U.S.C. § 108(a) (1988).

175 See 17 U.S.C. § 108(b) (1988).

176 House Report at 75, reprinted in 1976 U.S.C.C.A.N. 5689.

"facsimile form" (unless, perhaps, the original copy in the collection was fixed in electronic or digital form).

REPLACEMENT COPIES

A library may reproduce a published work duplicated in facsimile form solely for the purpose of replacing a copy or phonorecord that is damaged, deteriorated, lost or stolen, if the library has, after reasonable efforts, determined that an unused replacement cannot be obtained at a fair price.¹⁷⁷ Again, the copy or phonorecord made must be in "facsimile form." The exemption does not allow for replacement of a published work by reproduction in digital form (at least when the original copy of the published work was not in digital form).

ARTICLES AND SHORT EXCERPTS FOR USERS

A library may make and distribute a copy of one article or other contribution to a copyrighted collection or periodical issue, or a copy or phonorecord of a small part of any other copyrighted work at the request of a user, subject to two conditions.¹⁷⁸

OUT-OF-PRINT WORKS FOR SCHOLARLY PURPOSES

A library may make and distribute a copy or phonorecord of an entire work if it has determined that a copy or phonorecord of the copyrighted work cannot be obtained at a fair price, subject to two conditions.¹⁷⁹

177 17 U.S.C. § 108(c) (1988); see House Report at 75, reprinted in 1976 U.S.C.C.A.N. 5689.

178 17 U.S.C. § 108(d) (1988). First, the copy or phonorecord must become the property of the user, and the library or archives must have no notice that the copy or phonorecord will be used for any purpose other than private study, scholarship, or research. Second, the library or archives must prominently display a warning of copyright at the place where orders are accepted and on its order form. Id.

179 17 U.S.C. § 108(e) (1988). First, the copy or phonorecord must become the property of the user, and the library or archives must have no notice that the copy or phonorecord will be used for any purpose other than private

NEWS PROGRAMS

A library may reproduce and distribute by lending a limited number of copies of an audiovisual news program.¹⁸⁰

INTERLIBRARY LOANS

The Copyright Act allows a library to make single copies of copyrighted works and to enter into interlibrary lending arrangements, but prohibits copying "in such aggregate quantities as to substitute for a subscription to or purchase of [a copyrighted] work."¹⁸¹ CONTU developed guidelines to interpret the quoted phrase, which were later included in the House Report and Conference Report on the Copyright Act of 1976.¹⁸² The guidelines provide that a library may "borrow" not more than five copies per year of articles from the most recent five years of any journal title.¹⁸³

The exemptions granted under Section 108 extend only to isolated and unrelated reproduction of a single copy or phonorecord of the same material on separate occasions,¹⁸⁴ and do not apply to (1) musical works; (2) pictorial, graphic, or sculptural works; or

study, scholarship, or research. Second, the library or archives must prominently display a warning of copyright at the place where orders are accepted and on its order form. *Id.*

180 *See* 17 U.S.C. § 108(f)(3) (1988).

181 17 U.S.C. § 108(g)(2) (1988).

182 *See* House Report at 68-79, *reprinted in* 1976 U.S.C.C.A.N. 5659, 5681-92; H.R. Conf. Rep. No. 1733, 94th Cong., 2d Sess. 72-73 (1976), *reprinted in* 1976 U.S.C.C.A.N. 5810, 5813-14 (hereinafter "Conference Report").

183 *Id.* at 72, *reprinted in* 1976 U.S.C.C.A.N. 5813.

184 *See* 17 U.S.C. § 108(g) (1988).

(3) motion pictures or other audiovisual works, except news programs.¹⁸⁵

Libraries may provide many works in digital format in the future. However, Section 108 does not permit libraries to convert printed works to a digital format without the authority of the copyright owners. Such conversion would constitute "reproduction" of those works,¹⁸⁶ and would require the authorization of the relevant copyright owners.

d. EDUCATIONAL USE EXEMPTIONS

Section 110(1) exempts from infringement liability the performance or display of a copyrighted work in the course of face-to-face teaching activities by a non-profit educational institution in a classroom or similar setting.¹⁸⁷

Section 110(2) exempts from liability the transmission of a performance or display of a copyrighted work if (1) the performance or display is a regular part of the systematic instructional activities of the non-profit educational institution; (2) the performance or display is directly related and of material assistance to the teaching content of the transmission; and (3) the transmission is made primarily for reception in classrooms or similar places or by persons to whom the transmission is directed because of their disabilities.¹⁸⁸

Like the library exemptions, the educational use exemptions are provided in addition to the fair use and other general exemptions, which are also available to educational institutions.

185 17 U.S.C. § 108(h) (1988).

186 See discussion of the scope of the exclusive right to reproduce a work *supra* pp. 35-37.

187 See 17 U.S.C. § 110(1) (1988).

188 See 17 U.S.C. § 110(2) (1988).

e. OTHER LIMITATIONS

REPRODUCTION OF COMPUTER PROGRAMS

The rights of an owner of a copyright in a computer program are limited such that the owner of a particular copy of a computer program may make a copy or adaptation of the program as an "essential step" in using the computer program in a computer or for archival purposes.¹⁸⁹ This limitation applies only with respect to "owners" of copies of programs, not licensees, borrowers or mere possessors.

CERTAIN PERFORMANCES AND DISPLAYS

Certain performances and displays are exempt from infringement liability under Section 110 of the Copyright Act, including:

189 Section 117 of the Copyright Act provides:

Notwithstanding the provisions of section 106, it is not an infringement for the owner of a copy of a computer program to make or authorize the making of another copy or adaptation of that computer program provided:

- (1) that such a new copy or adaptation is created as an essential step in the utilization of the computer program in conjunction with a machine and that it is used in no other manner, or
- (2) that such new copy or adaptation is for archival purposes only and that all archival copies are destroyed in the event that continued possession of the computer program should cease to be rightful.

17 U.S.C. § 117 (1988 & Supp. V 1993). Any identical copies made in accordance with Section 117 "may be leased, sold, or otherwise transferred, along with the copy from which such copies were prepared, only as part of the lease, sale, or other transfer of all rights in the program." Adaptations made may be transferred only with the authorization of the owner of the copyright in the original program. *Id.*

- the performance or display of certain works in the course of religious services;¹⁹⁰
- the performance of certain works by governmental or non-profit agricultural or horticultural organizations;¹⁹¹
- the performance of certain musical works in retail outlets for the sole purpose of promoting retail sales;¹⁹²
- the transmission of performances of certain works to disabled persons;¹⁹³ and
- the performance of certain works at non-profit veterans' or fraternal organizations for charitable purposes.¹⁹⁴

The "communication of a transmission embodying a performance or display of a work by the public reception of the transmission on a single receiving apparatus of a kind commonly used in private homes" is also exempted if there is no direct charge to see or hear the transmission and the transmission is not further transmitted to the public.¹⁹⁵ This exemption allows proprietors to play radios or televisions (i.e., to perform or display copyrighted works in those transmissions) in public establishments such as restaurants, beauty shops and bars.¹⁹⁶ The applicability of this

190 See 17 U.S.C. § 110(3) (1988).

191 See 17 U.S.C. § 110(6) (1988).

192 See 17 U.S.C. § 110(7) (1988).

193 See 17 U.S.C. § 110(8), (9) (1988).

194 See 17 U.S.C. § 110(10) (1988).

195 See 17 U.S.C. § 110(5) (1988).

196 See, e.g., the decision in Twentieth Century Music Corp. v. Aiken, 422 U.S. 151 (1975), which was essentially codified in Section 110(5) (owner of a small food establishment exempt from infringement liability for the performance of copyrighted works via a radio and four small ceiling speakers). See also Sailor Music v. The Gap Stores, Inc., 516 F. Supp. 923

exemption is extremely fact-specific and what qualifies as a type of receiving apparatus "commonly used in private homes" will certainly change as home equipment merges (into, for example, radio/television/computer units) and becomes more sophisticated.¹⁹⁷

EPHEMERAL RECORDINGS

Section 112 provides that it is not an infringement of copyright for a "transmitting organization" that has the right to transmit to the public a performance or display of a work "to make no more than one copy or phonorecord of a particular transmission program embodying the performance or display" under certain conditions.¹⁹⁸

COMPULSORY LICENSES

Section 111 and Section 119 are compulsory licensing provisions that allow cable systems and satellite operators to retransmit copyrighted programming without infringement liability if they pay a statutory licensing fee (which is then distributed among

(S.D.N.Y.), *aff'd*, 668 F.2d 84 (2d Cir. 1981), *cert. denied*, 456 U.S. 945 (1982); *Rodgers v. Eighty Four Lumber Co.*, 617 F. Supp. 1021 (W.D.Pa. 1985); *Springsteen v. Plaza Roller Dome, Inc.*, 602 F. Supp. 1113 (M.D.N.C. 1985).

¹⁹⁷ See e.g., *Cass County Music Co. v. Muedini*, 1993 U.S. Dist. LEXIS 4562 (E.D. Wisc. 1993) ("To say that [the defendant] is liable because it has nine speakers and the shops in [another case] had two (or four in *Aiken*) would be silly," taking note of the multiple speakers in many home systems today).

¹⁹⁸ See 17 U.S.C. § 112(a) (1988). This limitation of the copyright owner's reproduction right is applicable only if:

- (1) the copy or phonorecord is retained and used solely by the transmitting organization that made it, and no further copies or phonorecords are reproduced from it; and
- (2) the copy or phonorecord is used solely for the transmitting organization's own transmissions within its local service area, or for purposes of archival preservation or security; and
- (3) unless preserved exclusively for archival purposes, the copy or phonorecord is destroyed within six months from the date the transmission program was first transmitted to the public. *Id.*

the copyright owners of the programming retransmitted).¹⁹⁹ These, as well as other, provisions of the Copyright Act will have to be reviewed as the merger of creative, communications, and computer entities continues. For instance, a compulsory license under Section 111 is only available to a "cable system," which is defined as "a facility . . . that in whole or in part receives signals transmitted or programs broadcast by one or more television broadcast stations" Terms such as "network station," "independent stations," and "noncommercial educational station" are also defined and used in Section 111, and may warrant review in the future.²⁰⁰

Compulsory licenses are also available for the public performance of nondramatic musical works by means of jukeboxes,²⁰¹ for the use of certain works in connection with noncommercial broadcasting,²⁰² and for the reproduction and distribution of nondramatic musical works in the course of making and distributing phonorecords of such works.²⁰³

199 See 17 U.S.C. §§ 111, 119 (1988 & Supp. V 1993). These provisions are referred to as "compulsory licenses" because under such provisions, copyright owners are compelled to grant the licenses. No license agreements are signed and the terms of such licenses are set forth in the statute; the copyright owner cannot object to the use of the work and must be satisfied with the license fees collected under the statute, which are distributed among all of the affected copyright owners by arbitrators impaneled by the Librarian of Congress.

200 See 17 U.S.C. § 111(f) (1988).

201 See 17 U.S.C. § 116 (Supp. V 1993). This compulsory license may only be invoked if private negotiations fail to produce a consensual license.

202 See 17 U.S.C. § 118 (1988 & Supp. V 1993).

203 See 17 U.S.C. § 115 (1988).

6. COPYRIGHT INFRINGEMENT

a. GENERAL

Anyone who, without the authorization of the copyright owner, exercises any of the exclusive rights of a copyright owner is an infringer of copyright.²⁰⁴ Thus, any activity that falls within the scope of the exclusive rights of the copyright owner is an infringement.²⁰⁵

Copyright infringement is determined without regard to the intent or the state of mind of the infringer; so-called "innocent" infringement is infringement nonetheless.²⁰⁶ Moreover, although the exclusive rights refer to such rights with respect to "copies" (plural)

204 See 17 U.S.C. § 501(a) (Supp. V 1993). Anyone who "trespasses into [the copyright owner's] exclusive domain by using or authorizing the use of the copyrighted work in one of the five ways set forth in the statute" is an infringer of the copyright. *Sony*, *supra* note 7, at 433. For purposes of this discussion on infringement, the lack of authorization by the copyright owner and the absence of a valid defense are presumed.

205 See discussion of the scope of the exclusive rights *supra* at pp. 34-64. For instance, activities such as loading a work into a computer, scanning a printed work into a digital file, uploading or downloading a work between a user's computer and a BBS or other server, and transmitting a work from one computer to another may be infringements (in those cases, of the reproduction right). See, e.g., *MAI Systems Corp. v. Peak Computer, Inc.*, 991 F.2d 511 (9th Cir. 1993) (the turning on of the computer, thereby causing the operating system to be copied into RAM, constituted an infringing reproduction of the copyrighted software); *Advanced Computer Services v. MAI Systems Corp.*, 845 F. Supp. 356 (E.D. Va. 1994) (loading software into computer's random access memory constituted infringing reproduction); see also 2 *Nimmer on Copyright* § 8.08 at 8-103 (1993) ("The input of a work into a computer results in the making of a copy, and hence . . . such unauthorized input infringes the copyright owner's reproduction right.").

206 The innocence or willfulness of the infringing activity may be relevant with regard to the award of statutory damages. See 17 U.S.C. § 504(c) (1988).

of the work,²⁰⁷ there is no question that under the Act the making of even a single unauthorized copy may constitute an infringement.²⁰⁸

Courts generally use the term "copying" as shorthand for a violation of any of the exclusive rights of the copyright owner (not just the reproduction right). Courts usually require a copyright owner to prove ownership of the copyrighted work and "copying" by the defendant to prevail in an infringement action.²⁰⁹

Since there is seldom direct evidence of copying (witnesses who actually saw the defendant copy the work, for instance), a copyright owner may prove copying through circumstantial evidence

207 See 17 U.S.C. § 106 (1988 & Supp. V 1993).

208 See House Report at 61, reprinted in 1976 U.S.C.C.A.N. 5674. Further evidence of the intent of Congress to make even a single act of unauthorized reproduction an infringement is found in specific exemptions created for certain single-copy uses. See, e.g., 17 U.S.C. §§ 108(a), 108(f)(2), 112(a) (1988); see also Texaco, supra note 162, at 17.

209 Various remedies are available to copyright owners in an infringement action. In a civil case, a copyright owner may seek a preliminary or permanent injunction to prevent or restrain infringement. See 17 U.S.C. § 502 (1988). Courts may also order the impounding of all copies or phonorecords at any time an action is pending. See 17 U.S.C. § 503(a) (1988). As part of a final judgment, the court may order the destruction (or any other "reasonable disposition") of the infringing copies or phonorecords. See 17 U.S.C. § 503(b) (1988). Actual damages may be awarded in the amount of the copyright owner's losses plus any profits of the infringer attributable to the infringement (that are not taken into account in the calculation of the losses). See 17 U.S.C. § 504(b) (1988). Or, at the election of the copyright owner, statutory damages may be awarded in the amount of \$500 to \$20,000 per copyrighted work infringed. See 17 U.S.C. § 504(c)(1) (1988). The court may reduce the statutory damage award (to a minimum of \$200) if it finds the infringement was "innocent" (i.e., the defendant was not aware of and had no reason to believe that its acts constituted an infringement of copyright) or increase the award (to a maximum of \$100,000) if it finds the infringement was committed willfully. See 17 U.S.C. § 504(c)(2) (1988). Criminal sanctions may also be levied against infringers if the infringement was willful and for purposes of commercial advantage or private financial gain. See 17 U.S.C. § 506 (a), (b) (1988).

establishing that the defendant had access to the original work and that the two works are substantially similar. Other indications of copying, such as the existence of common errors, have also been accepted as evidence of infringement.²¹⁰

The copying of the copyrighted work must be copying of protected expression and not just ideas;²¹¹ likewise, the similarity between the two works must be similarity of protected elements (the expression), not unprotected elements (the facts, ideas, etc.). The portion taken must also be more than de minimis.

The similarity between the two works need not be literal (i.e., phrases, sentences or paragraphs need not be copied verbatim); substantial similarity may be found even if none of the words or brush strokes or musical notes are identical.²¹² Various tests have

210 See, e.g., Rockford Map Publishers, Inc. v. Directory Serv. Co., 224 U.S.P.Q. 851 (C.D. Ill. 1984), aff'd, 768 F.2d 145 (7th Cir. 1985), cert. denied, 474 U.S. 1061 (1986); Sub-Contractors Register, Inc. v. McGovern's Contractors & Builders Manual, Inc., 69 F. Supp. 507, 509 (S.D.N.Y. 1946). It is common for publishers of directories and other compilations to deliberately insert mistakes into the work (such as periodically adding a fictitious name, address and phone number in a telephone directory) to detect and help establish copying. See 2 Howard B. Abrams, The Law of Copyright § 14.02[B][3][c], at 14-19 to 20 (1993).

211 This should be implied in the requirement that there be copying of the copyrighted work. Ideas and facts, of course, are not copyrighted. In the case of compilations, such as databases, if enough facts are copied, the copyrighted expression (the selection, arrangement or coordination of the facts) may be copied and infringement may be found. See CONTU Final Report, supra note 8, at 42 ("The use of one item retrieved from such a work — be it an address, a chemical formula, or a citation to an article — would not . . . conceivably constitute infringement of copyright. The retrieval and reduplication of any substantial portion of a data base, whether or not the individual data are in the public domain, would likely constitute a duplication of the copyrighted element of a data base and would be an infringement.").

212 See Donald v. Zack Meyer's T.V. Sales & Service, 426 F.2d 1027, 1030 (5th Cir. 1970) ("paraphrasing is equivalent to outright copying"), cert. denied, 400 U.S. 992 (1971); Davis v. E.I. DuPont de Nemours & Co., 240 F. Supp. 612, 621 (S.D.N.Y. 1965) ("paraphrasing is tantamount to copying in copyright law"); see generally 3 Nimmer on Copyright § 13.03[A], at 13-28 to 13-58 (1993). Nimmer identifies two bases upon which courts impose liability for less than

been developed to determine whether there has been sufficient non-literal copying to constitute substantial similarity between a copyrighted work and an allegedly infringing work.²¹³ Judge Learned Hand articulated the well-known "abstractions test," where the expression and the idea are, in essence, treated as ends of a continuum, with infringement found if the allegedly infringing work crosses the line delineating the two.²¹⁴ Such a line, as Judge Hand recognized, is not fixed in stone; indeed, as he put it, its location must "inevitably be ad hoc"²¹⁵ The "pattern" test has also been suggested, where infringement is found if the "pattern" of the work is taken (in a play, for instance, the "sequence of events, and the development of the interplay of characters").²¹⁶

The "subtractive" test – which dissects the copyrighted work, disregards the noncopyrightable elements, and compares only the copyrightable elements of the copyrighted work to the allegedly infringing work – historically has been the traditional method for

100 percent verbatim copying: (1) "fragmented literal similarity" (where words, lines or paragraphs are copied virtually word-for-word, although not necessarily verbatim) and (2) "comprehensive nonliteral similarity" (where the "fundamental essence or structure" of a work is copied); see also II Paul Goldstein, *Copyright* § 7.2.1, at 13-17 (1989). Goldstein identifies three types of similarity: (1) where the infringing work "tracks" the original work "in every detail," (2) "striking similarity" (where a brief portion of both works is "so idiosyncratic in its treatment as to preclude coincidence,") and (3) similarities that "lie beneath the surface" of the works ("[i]ncident and characterization in literature, composition and form in art, and rhythm, harmony and musical phrases in musical composition"). *Id.* at 13 (citations omitted).

213 For a detailed analysis of the various tests that have been used, see 3 *Nimmer on Copyright* § 13.03[A] at 13-28 to 13-58 (1993).

214 See *Nichols v. Universal Pictures, Corp.*, 45 F.2d 119, 121 (2d Cir. 1930).

215 See *Peter Pan Fabrics Inc. v. Martin Weiner, Corp.*, 274 F.2d 487 (2d Cir. 1960).

216 See Zechariah Chaffee, *Reflections on the Law of Copyright: I*, 45 *Columbia Law Review* 503, 513 (1945).

determining substantial similarity.²¹⁷ Following the 1970 Ninth Circuit decision in Roth Greeting Cards v. United Card Co.,²¹⁸ however, the "totality" test became popular for determining substantial similarity. The totality test compares works using a "total concept and feel" standard to determine whether they are substantially similar. Although predominantly used by the Ninth Circuit throughout the 1970s and 1980s,²¹⁹ the test was used by other circuits as well.²²⁰ The Ninth Circuit further defined an "extrinsic/intrinsic" test in proof of substantial similarity in Sid & Marty Krofft Television Productions, Inc. v. McDonald's Corp.²²¹ The intrinsic portion of the test measures whether an observer "would find the total concept and feel of the works" to be substantially similar.²²² The extrinsic portion of the test, meanwhile, is an objective analysis of similarity based on "specific criteria that can be listed and analyzed."²²³ Thus, this test requires substantial

217 See Universal Athletic Sales Co. v. Salkeld, 511 F.2d 904, 908-09 (3d Cir.), cert. denied, 423 U.S. 863 (1975) (subtracting all but the "stick figures" from chart as non-protectible subject matter); Alexander v. Haley, 460 F. Supp 40, 46 (S.D.N.Y. 1978) (finding "alleged infringements display no similarity at all in terms of expression or language, but show at most some similarity of theme or setting. These items, the skeleton of creative work rather than the flesh, are not protected by the copyright laws.").

218 See 429 F.2d 1106 (9th Cir. 1970).

219 See, e.g., Sid & Marty Krofft Television Prods., Inc. v. McDonald's Corp., 562 F.2d 1157 (9th Cir. 1977); McCulloch v. Albert E. Price, Inc., 823 F.2d 316 (9th Cir. 1987).

220 See, e.g., Reyher v. Children's Television Workshop, 533 F.2d 87 (2d Cir. 1976); Atari, Inc. v. North American Philips Consumer Elecs. Corp., 672 F.2d 607 (7th Cir.), cert. denied, 459 U.S. 880 (1982); Atari Games Corp. v. Oman, 888 F.2d 878 (D.C. Cir. 1989); Whelan Assocs., Inc. v. Jaslow Dental Lab., Inc., 797 F.2d 1222 (3d Cir. 1986), cert. denied, 479 U.S. 877 (1987).

221 562 F.2d 1157 (9th Cir. 1977).

222 See Pasillas v. McDonald's Corp., 927 F.2d 440, 442 (9th Cir. 1991).

223 See Brown Bag Software v. Symantec Corp., 960 F.2d 1465, 1475 (9th Cir. 1992).

similarity "not only of the general ideas but of the expressions of those ideas as well."²²⁴

More recently, however, both the Ninth and Second Circuits have moved away from the totality test with respect to computer applications. In Data East USA, Inc. v. Epyx, Inc.²²⁵ the Ninth Circuit rediscovered "analytic dissection of similarities" in the substantial similarity determination of video games. Similarly, the Second Circuit in Computer Associates International, Inc. v. Altai, Inc.²²⁶ fashioned an "abstraction-filtration-comparison test" for a computer program that combined Judge Learned Hand's "abstraction" test (to separate ideas from expression) and "filtration" reminiscent of traditional "subtraction" analysis in filtering protectible from non-protectible material.

In addition to the shifting tide of substantial similarity tests, there is dispute as to the appropriate "audience" for determining substantial similarity. The "ordinary observer test" alluded to in Arnstein v. Porter,²²⁷ and followed in a number of Second Circuit decisions²²⁸ considers the question of substantial similarity from the viewpoint of the "average lay observer."²²⁹ The Fourth Circuit, however, set forth a modified test in Dawson v. Hinshaw Music Inc.,²³⁰ requiring the ordinary observer to be the "intended"

224 Krofft, *supra* note 221, at 1164.

225 862 F.2d 204 (9th Cir. 1988).

226 982 F.2d 693 (2d Cir. 1992); see Sega Enters. Ltd. v. Accolade, Inc., (9th Cir. 1993); Autoskill Inc. v. National Educational Support Systems, Inc. (10th Cir. 1993).

227 154 F.2d 464 (2d Cir. 1946).

228 See, e.g., Peter Pan Fabrics, Inc. v. Martin Weiner Corp., 274 F.2d 487 (2d Cir. 1960); Ideal Toy Corp. v. Fab-Lu Ltd., 360 F.2d 1021 (2d Cir. 1966); Eden Toys, Inc. v. Marshall Field & Co., 675 F.2d 498 (2d Cir. 1982).

229 Ideal Toy Corp. at 1023 n.2

230 905 F.2d 731 (4th Cir. 1990).

audience for the particular work. Relying on decisions by both the Ninth and Seventh Circuits,²³¹ the court in Dawson stated:

[i]f the lay public fairly represents the intended audience, the court should apply the lay observer formulation of the ordinary observer test. However, if the intended audience is more narrow in that it possesses specialized expertise, . . . the court's inquiry should focus on whether a member of the intended audience would find the two works to be substantially similar.²³²

The challenge of this test, especially in more advanced technologies, is determining when, if ever, a work is not directed to an audience possessing specialized expertise.

The ability to manipulate works in digital format raises an issue with respect to infringement of the reproduction and derivative works rights. A copyrighted photograph, for instance, can be manipulated in the user's computer in such a way that the resulting work is not substantially similar to the copyrighted work (in fact, it may bear little or no resemblance to the copyrighted work upon which it was based). The initial input of the copyrighted work into the user's computer may be an infringement of the copyright owner's reproduction right, but the infringing (or noninfringing) nature of the resulting work is less clear. Although courts traditionally rely on a "substantial similarity" test to determine infringement liability, neither the meaning of "derivative work" nor the statutory standard

²³¹ See Aliotti v. R. Dakin & Co., 831 F.2d 898, 902 (9th Cir. 1987) (holding that perceptions of children must be considered in substantial similarity analysis because they are intended market for product); Atari, Inc. v. North American Philips Consumer Elecs. Corp., 672 F.2d 607, 619 (7th Cir.), cert. denied, 459 U.S. 880 (1982) (holding that "[v]ideo games, unlike an artist's painting, . . . appeal to an audience that is fairly indiscriminating insofar as their concern about more subtle differences in artistic expression").

²³² Dawson, *supra* note 230, at 736.

for infringement appears to require an infringing derivative work to be substantially similar.²³³

b. INFRINGING IMPORTATION

The exclusive right to distribute copies or phonorecords includes the right to limit the importation of copies or phonorecords of a work acquired outside the United States into the U.S. without the authority of the copyright owner.²³⁴ Such unauthorized importation, whether it be of pirated items (i.e., "copies or phonorecords made without any authorization of the copyright owner")²³⁵ or "gray market" products (i.e., those copies or phonorecords legally produced overseas for foreign distribution, but not authorized for the U.S. market), is an infringement of the distribute right.²³⁶

²³³ An infringer is anyone who violates "any of the exclusive rights" of the copyright owner. 17 U.S.C. § 501(a) (Supp. V 1993). One of the exclusive rights is "to prepare derivative works based upon the copyrighted work." 17 U.S.C. § 106(2) (1988). A "derivative work" is a work "based upon one or more preexisting works, such as a . . . condensation, or any other form in which a work may be recast, transformed, or adapted." 17 U.S.C. § 101 (1988) (definition of "derivative work"). The Ninth Circuit has suggested that "a work is not derivative unless it has been substantially copied from the prior work." See Litchfield v. Spielberg, 736 F.2d 1352, 1357 (9th Cir. 1984) (emphasis added). It is unclear, however, whether the court is suggesting that a derivative work must be substantially similar to the prior work or that it simply must incorporate in some form a portion of the prior work, as noted in the legislative history. See House Report at 62, reprinted in 1976 U.S.C.C.A.N. 5675. The court noted that there is "little available authority" on infringement of the derivative works right. See id.

²³⁴ 17 U.S.C. § 602(a) (1988).

²³⁵ House Report at 169, reprinted in 1976 U.S.C.C.A.N. 5785.

²³⁶ U.S. copyright law differs from trademark law in this respect. Trademark law does not prohibit the parallel importation into the United States of genuine trademarked products, i.e., products legally produced overseas for foreign distribution and imported into the United States by other than the authorized U.S. manufacturer, distributor or licensee. The quality or specifications of the product produced for foreign distribution may differ from those of the product manufactured for distribution in the U.S. market.

The applicability of the importation provisions to the transmission of works into the United States via the NII (or GII) may be debated. Nevertheless, the importation right is an outgrowth of the distribution right, both of which refer to "copies or phonorecords."²³⁷ A data stream can contain a copyrighted work in the form of electronic impulses, but those impulses do not fall within the definition of "copies" or "phonorecords." Therefore, the transmission of copyrighted works via international communication links fails to constitute an "importation" under the current law because no "copies" or "phonorecords" are being imported. If an infringing literary work, for instance, was physically shipped into the U.S. in the form of a paper copy, a CD-ROM disk or even stored on a memory chip, then it could be an infringing importation if the above discussed conditions exist, but it would appear that Section 602, as currently written, could not be used to block the electronic transmission of such material.²³⁸

c. CONTRIBUTORY AND VICARIOUS LIABILITY

Direct participation in infringing activity is not a prerequisite for infringement liability, as the Copyright Act grants to copyright owners not only the right to exercise the exclusive rights, but also the right "to authorize" the exercise of those rights. According to the House Report, the inclusion of the right "to authorize" was "intended to avoid any questions as to the liability of contributory infringers" -- those who do not directly exercise the copyright owner's rights,

Additionally, warranties offered by the U.S. manufacturer, distributor or licensee may not apply. However, the sale of the "gray market" trademarked product in the United States does not generally constitute trademark infringement or unfair competition.

237 See discussion of transmissions and the distribution right *supra* pp. 38-42.

238 The Customs Service would be ill-equipped to deal with such infringing transmissions if they did fall within Section 602.

but "authorize" others to do so.²³⁹ Other than the reference to a copyright owner's right "to authorize" exercise of the exclusive rights, however, the Copyright Act does not mention or define "contributory infringement" or "vicarious liability," the standards for which have developed through case law.²⁴⁰

If someone has the "right and ability" to supervise the infringing action of another, and that right and ability "coalesce with an obvious and direct financial interest in the exploitation of copyrighted materials – even in the absence of actual knowledge" that the infringement is taking place, the "supervisor" may be held vicariously liable for the infringement.²⁴¹ Vicarious liability is based on a connection to the direct infringer (not necessarily to the infringing activity).

The best known copyright cases involving vicarious liability are the "dance hall" cases, where vicarious liability was found when dance hall owners allowed the unauthorized public performance of musical works by the bands they hired, even when the owners had no knowledge of the infringements and had even expressly warned the bands not to perform copyrighted works without a license from the copyright owners.²⁴²

239 See House Report at 61, reprinted in 1976 U.S.C.C.A.N. 5674. There must be a direct infringement upon which contributory infringement or vicarious liability to be based.

240 The concepts of contributory and vicarious liability are well-established in tort law. Contributory infringement of intellectual property rights was first codified in patent law. See 35 U.S.C. § 271(c) (1988).

241 Shapiro, Bernstein & Co. v. H.L. Green Co., 316 F.2d 304, 307 (2d Cir. 1963) (holding that company that leased floor space to phonograph record department was liable for record department's sales of "bootleg" records despite absence of actual knowledge of infringement, because of company's beneficial relationship to the sales).

242 See, e.g., Dreamland Ball Room, Inc. v. Shapiro, Bernstein & Co., 36 F.2d 354 (7th Cir. 1929); Famous Music Corp. v. Bay State Harness Horse Racing & Breeding Ass'n, Inc., 554 F.2d 1213 (1st Cir. 1977); KECA Music, Inc. v. Dingus McGee's Co., 432 F. Supp. 72 (W.D. Mo. 1977). Indeed, the "cases are legion which hold the dance hall proprietor liable for the infringement of copyright

"Contributory infringement" may be found when "one who, with knowledge of the infringing activity, induces, causes or materially contributes to the infringing conduct of another."²⁴³ Contributory infringement is based on a connection to the infringing activity (not necessarily to the direct infringer). A contributory infringer may be liable based on the provision of services or equipment related to the direct infringement.²⁴⁴

SERVICES

A contributory infringer may be liable based on the provision of services related to the infringement. Courts have found contributory infringement liability, for instance, when a defendant chose the infringing material to be used in the direct infringer's

resulting from the performance of a musical composition by a band or orchestra whose activities provide the proprietor with a source of customers and enhanced income. He is liable whether the bandleader is considered, as a technical matter, an employee or an independent contractor, and whether or not the proprietor has knowledge of the compositions to be played or any control over their selection." Shapiro, Bernstein & Co. v. H.L. Green Co., 316 F.2d 304, 307(2d Cir. 1963)(citing some 10 cases).

243 Gershwin Publishing Corp. v. Columbia Artists Management, Inc., 443 F.2d 1159, 1162 (2d Cir. 1971) (holding management firm's authorization of clients' performances of copyrighted compositions to be contributory infringement).

244 A library is exempted from liability for the unsupervised use of reproducing equipment located on its premises provided that the equipment displays a copyright law notice. 17 U.S.C. § 108(f)(1). This exemption does not apply to the user of such equipment, see 17 U.S.C. § 108(f)(2), and no other provider of equipment enjoys any statutory immunity.

work,²⁴⁵ and when a defendant was responsible for the day-to-day activities where the infringement took place.²⁴⁶

Copyright owners may allege contributory infringement in NII-related cases against service providers, such as BBS operators. As noted earlier, the court in Playboy²⁴⁷ found the BBS operator directly liable for the display of the unauthorized copies on the service, as well as the "distribution" of unauthorized copies to subscribers. However, another court recently cited the Playboy case in finding that the plaintiff had established a prima facie case of contributory infringement by a BBS operator. In Sega Enterprises Ltd. v. MAPHIA,²⁴⁸ the court issued a preliminary injunction against the BBS operator based on the operator's "role in copying [Sega's copyrighted video games], including provision of facilities, direction, knowledge and encouragement."²⁴⁹ The court found that the BBS operator had knowledge of the uploading and downloading of unauthorized copies of Sega's copyrighted video games and that it solicited the copying of the games.²⁵⁰

245 See Universal Pictures Co. v. Harold Lloyd Corp., 162 F.2d 354, 366 (9th Cir. 1947) (rejecting defendant's argument that as an employee, he was not responsible for his employer's decision to use infringing material, in light of defendant's personal selection and appropriation of the protected material).

246 See Boz Scaggs Music v. KND Corp., 491 F. Supp. 908, 913 (D. Conn. 1980) (finding defendant liable based on own admission of responsibility and control over radio performances of protected works).

247 Supra note 115.

248 Supra note 119.

249 Sega, supra note 119, at *18. The court found a prima facie case for both direct infringement, based on the BBS operator's permitting of the uploading of the copyrighted games onto the BBS, and contributory infringement, based on the operator's "role in copying" the games. Id. at *17-18.

250 Sega, supra note 119, at *7. A class action against another BBS operator was recently filed which seems to allege both direct and contributory infringement. See Frank Music Corp. v. Compuserve Inc., Civil Action No. 93 Civ. 8153 (JFK) (S.D.N.Y.) (complaint filed Nov. 29, 1993). The Complaint alleges that defendant, by providing access to its BBS by subscribers, engaged in: (1)

Two recent libel decisions may provide additional guidance.²⁵¹ In Auvil v. CBS "60 Minutes"²⁵² the court held that a network affiliate which exercised no editorial control over the network broadcast (although it had the power to do so) served only as a conduit and was not liable for republishing defamatory statements.²⁵³ Despite the fact that the affiliate had some idea of the content and had access to the broadcast hours before it aired, the court refused to hold it liable for any defamation contained therein. The court found it unrealistic to force, in effect, the creation of editorial boards "which possess sufficient knowledge, legal acumen

"permitting, facilitating and participating in the recording of performances of the [Plaintiffs' works] into, and storing such recordings in, CompuServe's computer database by permitting and enabling its paying subscribers to upload such performances thereto"; (2) "maintaining a storage of unauthorized recordings of [the Plaintiffs' works] (uploaded by its subscribers) in and as part of CompuServe's computer database"; and (3) "permitting, facilitating and participating in the recording (i.e. re-recording) of the performances of [the Plaintiffs' works] (theretofore stored in its computer database) by permitting and enabling its paying subscribers to download such recorded performances therefrom." Complaint at 6-7. In addition, the Plaintiffs allege that CompuServe had "control over the nature and content of materials stored in its Bulletin Board and downloaded therefrom"; that CompuServe "had actual knowledge of, or in the exercise of reasonable diligence could have determined, the nature and content of materials stored in its Bulletin Board and downloaded therefrom"; and that CompuServe "had actual notice, or in the exercise of reasonable diligence could have determined, that recordings of [the Plaintiffs' works] were uploaded (recorded) to, stored in, and downloaded (re-recorded) from its computer database." See Complaint at 7.

251 Defamation cases may be distinguished, however, based on the knowledge requirement, which is absent in copyright infringement cases.

252 800 F. Supp. 928 (E.D. Wash. 1992).

253 *Id.* at 931. The state common law in this case holds a person who "republishes" defamatory statements made by another liable. Given the broadness with which the jurisdiction had interpreted republication, the court assumed, for purposes of disposition of the affiliate defendants' motion for summary judgment that the affiliates did republish the defamation.

and access to experts to continually monitor incoming transmissions and exercise on-the-spot discretionary calls or face . . . million dollar lawsuits at every turn."²⁵⁴ The court borrowed reasoning from book seller cases -- "one who only delivers or transmits defamatory material published by a third person is subject to liability if, but only if, he knows or had reason to know of its defamatory character"²⁵⁵ -- finding "no logical basis for imposing a duty of censorship on the visual media which does not likewise attach to the print chain of distribution."

It should be noted, however, that in the Auvil case, the court found that the injured parties were not impaired by limiting conduit liability to those situations where culpability is established; "[t]he generating source, which in a national broadcast will generally be the deepest of the deep pockets, may still be called upon to defend."²⁵⁶ This likely would not be true in BBS cases, where the generating source -- a BBS subscriber -- may not have as deep pockets as the BBS operator and, in fact, may be unidentifiable.

A similar result was reached in Cubby, Inc. v. CompuServe Inc.²⁵⁷ In that case, the court held that libelous material uploaded to a bulletin board system by a subscriber did not subject the BBS operator to damages for libel. The court determined that a BBS was a "distributor" (akin to a public library or bookstore) rather than a "republisher," and thus the operator was liable only if it "knew or had reason to know of the allegedly defamatory . . . statements" that had been uploaded.²⁵⁸

254 Id.

255 Id. at 931-32 (quoting Dworkin v. Hustler Magazine, Inc., 634 F. Supp. 727, 729 (D. Wyo. 1986) (quoting Restatement (Second) of Torts § 581).

256 Id. at 932.

257 776 F. Supp. 135 (S.D.N.Y. 1991).

258 Id. at 141.

EQUIPMENT

Contributory infringement liability may also be based on the provision of equipment or other instrumentalities or goods used in or related to the infringement. The leading case is Sony Corp. v. Universal City Studios, Inc.,²⁵⁹ a 5 to 4 decision by the Supreme Court in which the majority of the Court held that the manufacturer of videocassette recorders was not a contributory infringer for providing the equipment used in the unauthorized reproduction of copyrighted works. Borrowing a patent law principle, the Court reasoned that manufacturers of staple articles of commerce that are capable of substantial noninfringing uses should not be held liable as contributory infringers.²⁶⁰ The Court held:

[T]he sale of copying equipment, like the sale of other articles of commerce, does not constitute contributory infringement if the product is widely used for legitimate, unobjectionable purposes. Indeed, it need merely be capable of substantial noninfringing uses.²⁶¹

259 464 U.S. 417 (1984).

260 *Id.* at 440.

261 *Id.* at 442. The Court cited two principles of patent law, but used only one as the appropriate analogy for copyright law:

The Copyright Act does not expressly render anyone liable for infringement committed by another. In contrast, the Patent Act expressly brands anyone who "actively induces infringement of a patent" as an infringer, 35 U.S.C. § 271(b), and further imposes liability on certain individuals labeled "contributory" infringers, § 271(c).

Id. at 434-35. Section 271(b) of the Patent Act provides, "Whoever actively induces infringement of a patent shall be liable as an infringer." 35 U.S.C. § 271(b) (1988). Section 271(c) provides, "Whoever sells a component of a patented machine, manufacture, combination or composition, or a material or apparatus for use in practicing a patented process, constituting a material part of the invention, knowing the same to be especially made or especially adapted for use in an infringement of such patent, and not a staple article or commodity of commerce suitable for substantial noninfringing use, shall be liable as a contributory infringer." 35 U.S.C. § 271(c) (1988).

The Court determined that the key question was whether the videocassette recorder was "capable of commercially significant noninfringing uses."²⁶² The Court also held that in an action for contributory infringement against a manufacturer of copying devices, "the copyright holder may not prevail unless the relief that he seeks affects only his programs, or unless he speaks for virtually all copyright holders with an interest in the outcome."²⁶³

The dissent²⁶⁴ did not agree that the patent "staple article of commerce" doctrine of contributory infringement was applicable to copyright law.²⁶⁵ Recognizing the "concerns underlying the 'staple article of commerce' doctrine," the dissent concluded that "if a significant portion of the product's use is noninfringing, the

262 *Id.* at 442. "In order to resolve that question, we need not explore all the different potential uses of the machine and determine whether or not they would constitute infringement. Rather, we need only consider whether on the basis of the facts as found by the District Court a significant number of them would be noninfringing." *Id.* The Court declined to "give precise content" to the issue of how much use is needed to rise to the level of "commercially significant." *See id.*

263 *Id.* at 446.

264 Of the four dissenting Justices, two remain on the Court today (now-Chief Justice Rehnquist and Justice Blackmun, who recently announced his impending retirement from the Court). Two of the Justices in the majority remain on the Court (Justice Stevens, who delivered the opinion of the Court, and Justice O'Connor).

265 *See Sony, supra* note 7, at 490 n41 (Blackmun, J., dissenting) ("The doctrine of contributory patent infringement has been the subject of attention by the courts and by Congress . . . and has been codified since 1952, . . . but was never mentioned during the copyright law revision process as having any relevance to contributory copyright infringement."); *see also id.* at 491 (disagreeing that "this technical judge-made doctrine of patent law, based in part on considerations irrelevant to the field of copyright . . . should be imported wholesale into copyright law. Despite their common constitutional source, . . . patent and copyright protections have not developed in a parallel fashion, and this Court in copyright cases in the past has borrowed patent concepts only sparingly.")

manufacturers and sellers cannot be held contributorily liable for the product's infringing uses."²⁶⁶

If virtually all of the product's use, however, is to infringe, contributory liability may be imposed; if no one would buy the product for noninfringing purposes alone, it is clear that the manufacturer is purposely profiting from the infringement, and that liability is appropriately imposed. In such a case, the copyright owner's monopoly would not be extended beyond its proper bounds; the manufacturer of such a product contributes to the infringing activities of others and profits directly thereby, while providing no benefit to the public sufficient to justify the infringement.²⁶⁷

Other cases against producers or providers of the instrumentalities of infringement since Sony generally have not been successful.²⁶⁸ However, the court in the recent Sega case²⁶⁹ issued a preliminary injunction against a BBS operator who sold special copiers, the "only substantial use" of which was to copy Sega's copyrighted video games.²⁷⁰ The court found that Sega established a prima facie case of contributory infringement by the BBS operator

266 See Sony, supra note 7, at 491. Examples of such products would be typewriters, computers, cameras, and fax machines.

267 Sony, supra note 7, at 491-92.

268 See, e.g., Vault Corp. v. Quaid Software Ltd., 847 F.2d 255 (5th Cir. 1988) (seller of computer programs that defeat anti-copying protection is not liable as contributory infringer because programs can be used to enable user to make legal archival copies of copyrighted computer programs under Section 117, which the court found to be a substantial noninfringing use). But see RCA Records v. All-Fast Sys., Inc., 594 F. Supp. 335 (S.D.N.Y. 1984) (operator is liable for contributory infringement based on its provision of sound recording facilities where public could make unauthorized phonorecords).

269 Supra note 119.

270 See Sega, supra note 119, at *13.

based on the operator's "advertising, sale and distribution" of the video game copiers.²⁷¹

d. CONFLICT OF LAWS

Conflict of laws issues may arise in NII-related copyright infringement actions. Resolution of these issues determines what law the court should apply. If the infringer and the infringement are in the United States, the U.S. Copyright Act would apply. However, different situations may present themselves which will raise conflict issues. For instance, users in country A, where certain actions are not considered copyright infringements, may use works located on servers in country B, where such actions are. Which country's law controls the resolution of a copyright infringement dispute -- the country from which a copyrighted work is uploaded or to which it is downloaded, or the country where the host server is located? In the case of direct transmissions, which country's law applies -- the country of origin of the transmission or the transmitter, or the country of the reception? It may be that rights of the copyright owner are exercised in each country. These issues, however, may be no more problematic than the current conflict issues that arise due to the use of telephones, fax machines or modems in international commerce.

7. INTERNATIONAL IMPLICATIONS

a. BACKGROUND

Other countries -- including Finland, Japan and Sweden -- and the European Union are initiating their own studies of the means to promote the development of national information infrastructures.

²⁷¹ See *Sega*, *supra* note 119, at *19. The court found that there was "no need to make archival copies of [Sega's] ROM game cartridges" because the "ROM cartridge format is not susceptible to breakdown" and Sega would replace defective cartridges. See *id.* at *13. The court also found that it was unlikely that customers would buy the copiers, at a cost of \$350, for the purpose of backing up Sega's video game programs, which sold for \$30 to \$70 each. *Id.*

For example, on February 7, 1994, Swedish Prime Minister, Carl Bildt, addressed the Swedish Academy of Engineering Sciences and called for the creation of a national coalition to spearhead the development of an advanced Swedish information infrastructure. It is important to note that the task force which the Prime Minister is assembling will include, among others, representatives of the Ministry of Justice who will be responsible for the development of rules for the protection of intellectual property in the system. On March 3, 1994, Commissioner Bangemann, Vice President of the European Commission met with Secretary of Commerce Ronald Brown and Assistant Secretaries Bruce Lehman and Larry Irving to discuss the possibilities for U.S.-EU cooperation in regard to the NII.

Without taking into account, from the outset, rules for the effective protection of intellectual property, the development of the international information superhighway will be severely hindered. How disparate domestic information superhighways will evolve into a Global Information Infrastructure (GII) will depend on the rules of the road, and one of the most important of those sets of rules is ensuring protection for the works of intellectual property that moves through international channels and into the emerging national information infrastructures. Adequate and effective protection of intellectual property in international commerce must be ensured.

Development of the GI will make international copyright laws a concern for every user of the system. When the globe is blanketed with digital information dissemination systems, a user in one country will be able to manipulate information resources in another country in ways that may violate that country's copyright laws. Because copyright laws are territorial, and the standards of protection embodied in the international conventions leave room for national legislative determinations, acts that may be an infringement in one country may not be an infringement in another country. The complexity that such a system creates will make doing "electronic business" over the information superhighways difficult unless we move promptly to identify needs for protection and initiate efforts to work toward a new level of international copyright harmonization.

U.S. copyright industries are significant contributors to the United States' current trade accounts, reducing our balance of payments deficit by some \$34 billion in 1990. Inadequacies in the

present system of intellectual property protection for copyrights and neighboring²⁷² or related rights and the consequent losses to these industries from piracy and from trade barriers arising from differences in forms of protection have been estimated to cause losses to these industries of \$12 to 15 billion annually. Improved protection for copyrights and neighboring rights would contribute to reducing these losses and improving the balance of payments.²⁷³

An important aspect of the participation of foreign entities through a GII in the United States domestic information infrastructure is the provision of adequate and effective intellectual property protection in the country wishing to participate. To the extent that participation in the NII can be linked to the provision of intellectual property protection, it will promote the ability of U.S. businesses to use the NII and the GII to communicate works to foreign consumers via other countries' information infrastructures. If we are to ensure that commercial enterprises will make full use of the capabilities of the NII to communicate and deliver information and entertainment products, there must be assurances that their intellectual property rights will be protected effectively under strong copyright laws in all countries participating in a GII.

However, in considering such linkages, careful consideration will have to be given to obligations under international intellectual property treaties and other international agreements such as the North American Free Trade Agreement (NAFTA) and the General Agreement on Tariffs and Trade (GATT), especially in view of the recently completed Uruguay Round with its various intellectual property and market access provisions.

272 "Neighboring rights" are discussed *infra* pp. 89, 92.

273 See Stephen E. Siwek & Harold W. Furchtgott-Roth, International Intellectual Property Alliance, Copyright Industries in the U.S. Economy (1993).

b. THE INTERNATIONAL FRAMEWORK

In the 1970's, then-U.S. Register of Copyrights Barbara Ringer observed that if Justice Story considered copyright to be the metaphysics of the law, then international copyright is its cosmology. That message is brought home to us in 1994 by the need to evaluate the applicability of copyright in the context of the complexities of international commerce in information and entertainment products via advanced information infrastructures.

First, we must understand that there is no such thing as an international copyright, but rather a system of international copyright law. There are several international treaties that link together most of the major trading nations of the world and provide nations with a means for protecting, under their own laws, each others copyrighted works and similar materials. This situation is further complicated because there are two major legal traditions applicable to the protection of what we in the United States regard as copyrighted works. To understand the complexities of the international copyright law system and the international treaties, it is necessary to have a basic appreciation of these two major legal regimes.²⁷⁴

The United States and other countries that follow the Anglo-American legal tradition have "copyright systems," the principal focus of which is on protecting the author's economic rights. The theory of our system is that providing such protection will induce the creation of more works which will "promote the progress of science" and redound to the public benefit.

²⁷⁴ See generally Stephen M. Stewart, International Copyright and Neighbouring Rights, (2d ed. 1989) (hereinafter "Stewart"). Stewart presents a summary of international copyright principles and summaries of the copyright laws of a number of countries. Stewart also identifies socialist copyright laws as a category. However, since the demise of the USSR, the former socialist countries have moved rapidly to enact Western-type copyright legislation. The recently enacted copyright law of the People's Republic of China also follows the civil law model.

Countries that follow the civil law tradition, however, regard authors' rights as natural human rights, or part of one's right of personality. As a part of this tradition, the protection of so-called "moral rights" of the author is an essential part of the system.²⁷⁵ Moral rights normally include the right of an author to be named as the author of a work and the right to object to uses of the work which could bring dishonor or discredit on the author's reputation. In these civil law systems, moral rights reflect a part of the author's personality and are non-transferable, and may be not waivable. Economic rights, in many instances, may be subordinated to moral rights. Under these systems, only works which are original, in that they reflect the personality of the author, are entitled to protection. Productions that do not meet this originality requirement, but still merit some protection, are protected under a system of "neighboring rights." Needless to say, with such divergent theoretical bases sometimes the copyright and the authors' rights systems are in conflict. One of these areas of conflict is in the nature and level of rights for owners of neighboring rights.

Neighboring rights are similar to the rights protected by copyright or authors' rights and are applied to protect the rights of producers of phonograms, performers and broadcasters. Under the copyright system, many of the rights covered under neighboring rights are actually copyright rights. For example, under the U.S. copyright law, sound recording producers and performers are regarded as joint authors of sound recordings. Under droit d'auteur (or authors' rights) systems, such producers' and performers' rights would be protected as neighboring rights. Neighboring rights, while similar in economic character to authors' rights, are protected generally at a lower level and are entirely separate and distinct from the higher-level rights granted to authors.

INTERNATIONAL TREATIES

The World Intellectual Property Organization (WIPO) is responsible for the administration of, and activities concerning

²⁷⁵ Stewart at 6.

revisions to, the international intellectual property treaties.²⁷⁶ The principal WIPO copyright conventions include the Berne Convention for the Protection of Literary and Artistic Works (Paris 1971) (hereinafter "Berne Convention"),²⁷⁷ the International Convention for the Protection of Performers, Producers of Phonograms and Broadcasting Organizations (hereinafter "Rome Convention"),²⁷⁸ and the Geneva Convention for the Protection of Producers of Phonograms Against the Unauthorized Reproduction of their Phonograms (Geneva Phonograms Convention).²⁷⁹ WIPO also administers the Paris Convention for the Protection of Industrial Property (Stockholm 1967) which is not discussed in this report. UNESCO²⁸⁰ and WIPO jointly administer the Universal Copyright Convention (Paris 1971) (hereinafter "UCC"),²⁸¹ which is a lower-

²⁷⁶ There are 143 members of the Convention Establishing the World Intellectual Property Organization (WIPO) as of January 1, 1994. Done at Stockholm on July 14, 1967; entered into force for the United States on August 25, 1970. 21 UST 1749; TIAS 6932; 828 UNTS 3.

²⁷⁷ Berne Convention (with Appendix) for the Protection of Literary and Artistic Works of September 9, 1886, completed at Paris on May 4, 1896, revised at Berlin on November 13, 1908, completed at Berne on March 20, 1914, revised at Rome on June 2, 1928, at Brussels on June 26, 1948, at Stockholm on July 14, 1967, and at Paris on July 24, 1971, amended at Paris on July 24, 1979. Done at Paris on July 24, 1971; entered into force for the United States on March 1, 1989. There are 105 members of the Convention.

²⁷⁸ International Convention for the Protection of Performers, Producers of Phonograms and Broadcasting Organizations. There are 45 members of the convention, but the United States is not a member. The Rome Convention is jointly administered by WIPO, the International Labor Organization (ILO) and the United Nations Educational, Scientific and Cultural Organization (UNESCO).

²⁷⁹ Convention for the Protection of Producers of Phonograms against Unauthorized Duplication of their Phonograms. Done at Geneva on October 29, 1971; entered into force on April 18, 1973; for the United States on March 10, 1974. 25 UST 309; TIAS 7808; 888 UNTS 67. There are 50 members of the Convention as of January 1, 1994.

²⁸⁰ UNESCO is the United Nations Educational, Scientific and Cultural Organization.

level copyright convention that was negotiated in the years following World War II largely to bring the United States into the world of international copyright. Virtually all of the members of the UCC are also members of the Berne Convention, and by the terms of the conventions the Berne Convention governs relations between members of both.

The Berne Convention is the principal international copyright convention, and is the largest and most detailed. The United States joined the Berne Convention in 1989. While it is generally regarded as providing adequate international standards of protection, some believe that it should be updated account for advances in electronic communications and information processing technology. Its members come from the world's major legal traditions -- the Anglo-American common law copyright system and the European civil law droit d'auteur system. However, despite its level of detail, as previously noted, and in part because it must accommodate differing legal traditions, in some areas its standards may be insufficient to deal with the world of digital dissemination of copyrighted works.

The principal treaty for the protection of neighboring rights, the Rome Convention, was adopted in 1961, and is considered by many to include standards that are inadequate for dealing with the problems raised by current technological advances and the level of trade in the products and services affected by its operation. It provides for the protection of producers of phonograms against unauthorized reproduction of their phonograms, for performers to prevent certain reproductions and fixations of their performances and it provides limited rights for broadcasting organizations. It also provides for protection against certain "secondary uses" of phonograms, such a broadcasting, but it contains the ability for members to reserve on this right. The United States does not belong to the Rome Convention.

The Geneva Phonograms Convention provides for the protection of phonograms against unauthorized reproduction and distribution

281 Universal Copyright Convention, as revised, with two protocols annexed thereto. Done at Paris on July 24, 1971, entered into force on July 10, 1974. 25 UST 1341; TIAS 7868.

for a minimum term of 20 years. It does not provide for a performance right in sound recordings. The United States belongs to the Geneva Phonograms Convention.

WIPO has convened a Committee of Experts on a Possible Protocol to the Berne Convention to account for developments since the 1971 revision of the Convention, and a Committee of Experts on a New Instrument for the Protection of Performers and Producers of Phonograms to consider how to provide improved rights for performers and producers of phonograms.

c. COPYRIGHT HARMONIZATION

The performers and the kinds of performances to which neighboring rights apply are not universally agreed. This has led to divergent regimes for the protection of economically important rights, both among industrialized and developing countries. A consequence of this divergence is that U.S. performers and producers have been denied the ability to share in remuneration for the use of their products and performances in some countries. Heretofore, there has not been strong support for the establishment of a system of statutory performers' rights in the United States. Historically, this has been because of the opposition of producers who are concerned that the establishment of performers' rights could upset the balance of power among producers and performers in contractual negotiations and collective bargaining. Also, broadcasters have concerns over the possible implications that such a course of harmonization might have for the establishment of performance rights in sound recordings.

In addition to the traditional WIPO forum, other international bodies now have a significant role in intellectual property policy formulation. The recently-concluded Trade-Related Aspects of Intellectual Property Agreement (hereinafter "TRIPs Agreement") under the Uruguay round of trade negotiations in the General Agreement on Tariffs and Trade (hereinafter "GATT") sets significant standards for the protection of copyright and related rights. And most importantly, it contains provisions to ensure that parties to the TRIPs Agreement fully implement its obligations.

d. NATIONAL TREATMENT

The principle of national treatment is the cornerstone of the great international intellectual property treaties -- Berne and Paris. It is also the keystone of international trade treaties, including, of course, the GATT. It is of enormous significance to our copyright industries. Generally, the principle of national treatment means that under a nation's laws, a foreigner enjoys no lesser rights and benefits than a citizen of that nation receives, subject to the specific terms of the relevant international conventions. In other words, a German work as to which copyright enforcement is sought in the United States would be treated under the law exactly as if it were a U.S. work for the purposes of the copyright law.

However, some argue that rights should be granted only on the basis of reciprocity. This concept, called "material reciprocity," means that we should grant a right to a foreigner only if his or her country grants our citizens the same right. Under this scenario, the German citizen would only be able to obtain protection under the U.S. law to the extent that German law provided the same, or at least equivalent, rights to a U.S. citizen.

THE BERNE CONVENTION

Article 5(1) and 5(2) of the Berne Convention establish the principle of national treatment for works protected by copyright.²⁸²

282 Article 5 provides:

- (1) Authors shall enjoy, in respect of works for which they are protected under this Convention, in countries of the Union other than the country of origin, the rights which their respective laws do now or may hereafter grant to their nationals, as well as the rights specially granted by this Convention.
- (2) The enjoyment and the exercise of these rights shall not be subject to any formality; such enjoyment and such exercise shall be independent of the existence of protection in the country of origin of the work. Consequently, apart from the provisions of this Convention, the extent of protection, as well as the means of redress afforded to the author to protect his rights, shall be governed exclusively by the laws of the country where protection is claimed.

Under Article 5(1), there is an obligation to grant to nationals of countries of the Berne Union national treatment in respect of the rights specifically covered by the Convention. This point is not disputed.²⁸³ However, with respect to any new rights which may be hereafter granted, some have taken the position that the national treatment obligation applies only to the minimum rights in the Convention.²⁸⁴

(3) Protection in the country of origin is governed by domestic law. However, when the author is not a national of the country of origin of the work for which he is protected under this Convention, he shall enjoy in that country the same rights as national authors.

(4) The country of origin shall be considered to be:

(a) in the case of works first published in a country of the Union, that country; in the case of works published simultaneously in several countries of the Union which grant different terms of protection, the country whose legislation grants the shortest term of protection;

(b) in the case of works published simultaneously in a country outside the Union and in a country of the Union, the latter country;

(c) in the case of unpublished works or of works first published in a country outside the Union, without simultaneous publication in a country of the Union, the country of the Union of which the author is a national, provided that:

(i) when these are cinematographic works the maker of which has his headquarters or his habitual residence in a country of the Union, the country of origin shall be that country, and

(ii) when these are works of architecture erected in a country of the Union or other artistic works incorporated in a building or other structure located in a country of the Union, the country of origin shall be that country.

283 See World Intellectual Property Organization, BCP/CE/III/3, Report of the Committee of Experts on a Possible Protocol to the Berne Convention, Third Session, June 21 to 25, 1993, 20-21 (June 25, 1993).

284 *Id.* at 21

THE ROME CONVENTION

The fundamental problem with the Rome Convention is that, while it generally imposes a national treatment obligation, it permits a number of reservations and exceptions that allow a Member to avoid that obligation for important rights otherwise provided for in the Convention. Article 3.1 of the TRIPs Agreement provides that "[i]n respect of performers, producers of phonograms and broadcasting organizations, this obligation [national treatment] only applies in respect of the rights provided under this Agreement."²⁸⁵ It also provides that a Member may avail itself of the "possibilities provided in . . . paragraph 1(b) of Article 16 of the Rome Convention . . ." relating to reciprocity for the broadcasting right in respect of phonograms.²⁸⁶

THE TRIPs AGREEMENT

Additionally, the TRIPs Agreement includes a national treatment obligation.²⁸⁷ In respect of copyright the TRIPs national

²⁸⁵ See Trade-Related Aspects of Intellectual Property, Final Act Embodying the Results of the Uruguay Round of the Multilateral Trade Negotiations, Office of the U.S. Trade Representative, Dec. 15, 1993.

²⁸⁶ *Id.*

²⁸⁷ Article 3 (National Treatment) provides:

1. Each Member shall accord to the nationals of other Members treatment no less favourable than that it accords to its own nationals with regard to the protection of intellectual property, subject to the exceptions already provided in, respectively, the Paris Convention (1967), the Berne Convention (1971), the Rome Convention and the Treaty on Intellectual Property in Respect of Integrated Circuits. In respect of performers, producers of phonograms and broadcasting organizations, this obligation only applies in respect of the rights provided under this Agreement. Any Member availing itself of the possibilities provided in Article 6 of the Berne Convention and paragraph 1(b) of Article 16 of the Rome Convention shall make a notification as foreseen in those provisions to the Council for Trade-Related Aspects of Intellectual Property Rights.

treatment provision incorporates the standards of the Berne Convention, but in respect of neighboring rights, it allows members to impose the exceptions to national treatment permitted by the Rome Convention.²⁸⁸ Permitting such exceptions can lead to problems in the implementation of a GII.

2. Members may avail themselves of the exceptions permitted under paragraph 1 above in relation to judicial and administrative procedures, including the designation of an address for service or the appointment of an agent within the jurisdiction of a Member, only where such exceptions are necessary to secure compliance with laws and regulations which are not inconsistent with the provisions of this Agreement and where such practices are not applied in a manner which would constitute a disguised restriction on trade.

288 Article 4 (Most-Favoured-Nation Treatment) provides:

With regard to the protection of intellectual property, any advantage, favour, privilege or immunity granted by a Member to the nationals of any other country shall be accorded immediately and unconditionally to the nationals of all other Members. Exempted from this obligation are any advantage, favour, privilege or immunity accorded by a Member:

(a) deriving from international agreements on judicial assistance and law enforcement of a general nature and not particularly confined to the protection of intellectual property;

(b) granted in accordance with the provisions of the Berne Convention (1971) or the Rome Convention authorizing that the treatment accorded be a function not of national treatment but of the treatment accorded in another country;

(c) in respect of the rights of performers, producers of phonograms and broadcasting organizations not provided under this Agreement;

(d) deriving from international agreements related to the protection of intellectual property which entered into force prior to the entry into force of the Agreement Establishing the MTO, provided that such agreements are notified to the Council for Trade-Related Aspects of Intellectual Property Rights and do not constitute an arbitrary or unjustifiable discrimination against nationals of other Members.

THE NAFTA

The NAFTA includes a very broad national treatment provision that does not include the possibility of making the broad exceptions provided for under the TRIPs agreement.²⁸⁹

e. PRIVATE COPYING ROYALTY SYSTEMS

The manner in which portions of the audio and video private copying royalties that are collected in some European countries are distributed to claimants may prove to be an impediment to future development of the GII if a similar approach is adopted in respect of digital information dissemination systems. As an example, France's Law of July 3, 1985 (1985 Law) establishes a system of neighboring rights protection for performers, audiovisual communication enterprises, producers of phonograms and producers of videograms. The 1985 Law, *inter alia*, grants specified right holders an entitlement to equitable remuneration in respect of the private copying of their works. Some of the 1985 law's provisions are based on reciprocity and thus discriminate against, for example, foreign motion picture interests. Consequently, those provisions may be inconsistent with France's obligations under the Berne Convention and the UCC. If this pattern is followed in implementing future legislation, serious impediments to the development of the GII may arise.

f. MORAL RIGHTS

The author's moral rights are provided for under Article 6*bis* of the Berne Convention.²⁹⁰ The nature and scope of moral rights

289 See North American Free Trade Agreement (hereinafter NAFTA), H.R. Doc. No. 159, 103d Cong., 1st Sess. (1993); 32 I.L.M. 289-456, 605-799 (1993).

290 Article 6*bis* provides:

(1) Independently of the author's economic rights, and even after the transfer of the said rights, the author shall have the right to claim authorship of the work and to object to any distortion, mutilation or other modification of, or other

varies considerably from country to country. The fact that these rights are non-transferable may create difficulties for the commercialization of works in the NII environment. A current draft report of the multimedia study committee of the Japanese Institute for Intellectual Property suggests that there may be a need to either permit the specific waiver of the right of integrity or to limit its application in the digital world.²⁹¹

B. PATENT

Development of the NII will depend upon, and stimulate innovation in, many fields of technology, especially computer software, computer hardware and telecommunications. An effectively functioning patent system that encourages and protects innovations in these fields of technology is, therefore, important for the overall success of the NII. The most significant issues related to the effects of the NII on the patent system include the impact the NII will have on the quantity and quality of information available from which to determine the patentability of inventions, as well as to judge the validity of patents.

derogatory action in relation to, the said work, which would be prejudicial to his honor or reputation.

(2) The rights granted to the author in accordance with the preceding paragraph shall, after his death, be maintained, at least until the expiry of the economic rights, and shall be exercisable by the persons or institutions authorized by the legislation of the country where protection is claimed. However, those countries whose legislation, at the moment of their ratification of or accession to this Act, does not provide for the protection after the death of the author of all the rights set out in the preceding paragraph may provide that some of these rights may, after his death, cease to be maintained.

(3) The means of redress for safeguarding the rights granted by this Article shall be governed by the legislation of the country where protection is claimed.

291 See "Exposure '94: A proposal for the new rule of intellectual property for multimedia," Institute of Intellectual Property 18 (Feb. 1994).

The goals of the patent system are to encourage innovation and public disclosure of advances in technology. To this end, the patent system offers an incentive to inventors to publicly disclose their inventions in exchange for the exclusive right to prevent others from making, using or selling the patented inventions for 17 years.

Patent protection is available in the United States for inventions without differentiation as to the field of technology: ". . . any new and useful process, machine, manufacture, or composition of matter . . ." can be patented.²⁹² However, unlike copyright protection, an inventor must specifically request protection by filing a patent application and demonstrating that the invention meets all of the statutory requirements of patentability. Specifically, an invention must be new,²⁹³ useful²⁹⁴ and nonobvious.²⁹⁵ In addition, the inventor must fully describe and disclose the invention in the patent application.²⁹⁶

²⁹² See 35 U.S.C. § 101 (1988). This language has been interpreted broadly by the Supreme Court in Diamond v. Chakrabarty, 447 U.S. 303, 309 (1980), wherein the Court held:

The subject matter provisions of the patent law have been cast in broad terms to fulfill the constitutional and statutory goal of promoting "the progress of science and the useful arts."

Congress employed broad language in drafting Section 101 precisely because such inventions are often unforeseeable.

Judicial precedent does exist denying patentability under Section 101 for claims directed to laws of nature and methods of doing business. See Donald S. Chisum, Patents § 1.01 (1992).

²⁹³ See discussion of 35 U.S.C. §102 infra notes 297-99 and accompanying text.

²⁹⁴ To be eligible for patent protection, an invention must be either a process, an article of manufacture, a composition or a machine. Discoveries, laws of nature, mathematical algorithms, methods of doing business and the like are not eligible for patent protection. See 35 U.S.C. § 101 (1988).

²⁹⁵ See discussion of 35 U.S.C. § 103 infra note 300 and accompanying text.

²⁹⁶ See 35 U.S.C. § 112 (1988).

Once a patent application has been filed with the Patent and Trademark Office (PTO), the application is reviewed by an Examiner against the "prior art" to determine whether the patentability requirements of novelty ("new") and nonobviousness have been met. While there are instances where non-public information constitutes prior art, generally speaking, prior art includes information that is publicly available prior to the filing date of a patent application.²⁹⁷ An invention satisfies the novelty requirement if it has not been publicly disclosed prior to the filing date of the patent application.²⁹⁸ Novelty exists unless the prior art completely discloses the invention that is claimed by the patent applicant.²⁹⁹ An invention satisfies the

²⁹⁷ Specifically, "prior art" is defined in 35 U.S.C. § 102 (1988):

A person shall be entitled to a patent unless —

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for patent, or

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of the application for patent in the United States, or

* * *

(f) he did not himself invent the subject matter sought to be patented, or

(g) before the applicant's invention thereof the invention was made in this country by another who had not abandoned, suppressed, or concealed it. In determining priority of invention there shall be considered not only the respective dates of conception and reduction to practice of the invention, but also the reasonable diligence of one who was first to conceive and last to reduce to practice, from a time prior to conception by the other.

²⁹⁸ Under U.S. law, an inventor has a one-year "grace period" to file a patent application. This grace period is invoked by inventors to avoid being barred from obtaining a U.S. patent when the invention has been publicly disclosed by another during the one year period before the inventor has filed a patent application. This grace period is not available in all countries. As a result, applicants must exercise care before disclosing their invention to avoid forfeiting patent rights in countries without a one year grace period.

²⁹⁹ For example, if a patent application is filed after an article is published in a technical journal which completely discloses the invention claimed in the

nonobviousness requirement if a "person of ordinary skill in the art" would not have viewed the invention as obvious in view of the prior art at the time the patent application was filed.³⁰⁰

The specific categories of prior art that are defined in Section 102 of the Patent Act can be used to deny the grant of a patent, or to invalidate a patent, on the grounds that the invention lacks novelty or is obvious.³⁰¹ These include, generally speaking, patents issued by the United States or by other countries; printed publications distributed in the United States or abroad; evidence of public use or public disclosure of an invention in the United States; and evidence of a sale or offer to sell an invention in the United States.³⁰² The NII will significantly improve the amount and availability of prior art. This, in turn, will have an impact on patentability determinations, whether made during the patent examination process or during challenges to patent validity through litigation in the Federal courts.

For example, a patent grants the owner the exclusive right to prevent others from making, using or selling the invention as it is

patent application, the application will be rejected by the PTO on the grounds that the claimed invention lacks novelty.

³⁰⁰ Section 103 sets forth the nonobviousness requirement, in pertinent part, as follows:

A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

35 U.S.C. § 103 (1988).

³⁰¹ The definition of prior art information in Section 102 also governs what information can be used in Section 103 non-obviousness determinations.

³⁰² The specific requirements of these patent-defeating publications and public disclosures are set forth in detail in 35 U.S.C. § 102, discussed *infra* pp. 99-100.

defined in the patent.³⁰³ A patent owner must exercise these patent rights against alleged infringers or run the risk of not being able to do so if found to have waited too long.³⁰⁴ The patent owner has the burden of establishing patent infringement. Patent infringement is established by demonstrating that the accused product or process falls within the scope of the patent claims.³⁰⁵ A party accused of infringement can avoid liability by asserting that the patent does not cover, either literally or under the doctrine of equivalents, the accused product or process.³⁰⁶ The accused infringer can also assert that the patent is either invalid or unenforceable, or both.

Parties can challenge the validity of a patent in the Federal district courts or before the PTO. By statute, a patent is presumed valid.³⁰⁷ Thus, in district court, the party challenging patent validity

303 See 35 U.S.C. § 154 (1988) ("Every patent shall contain . . . a grant to the patentee . . . for the term of seventeen years . . . of the right to exclude others from making, using, or selling the invention throughout the United States and, if the invention is a process, of the rights to exclude others from using or selling throughout the United States, products made by that process, referring to the specification for the particulars thereof.")

304 See 35 U.S.C. § 271(a) (1988) ("Except as otherwise provided in this title, whoever without authority makes, uses or sells any patented invention, within the United States during the term of the patent therefor, infringes the patent.")

305 The claims of a patent define the metes and bounds of the invention by specifically defining the features of an invention which are protected.

306 Literal infringement is established when the accused product or process contains each and every element set forth in the patent claims. However, in certain circumstances, a patent owner can establish infringement even if the accused product or process does not have each of the elements set forth in the claims. This type of infringement is known as infringement under the doctrine of equivalents, an equitable remedy designed to prevent misappropriation of the essence of the patented invention. Under the doctrine of equivalents, infringement is established by proving that the accused product or process "performs substantially the same function in substantially the same way to obtain the same result as the patented invention." See Graver Tank & Mfg. Co. v. Linde Air Prods. Co., 339 U.S. 605, 607 (1950).

307 See 35 U.S.C. § 282 (1988):

must demonstrate through clear and convincing evidence that the patent fails to satisfy one or more of the statutory criteria of patentability (e.g., novelty, utility, obviousness, or adequate disclosure).³⁰⁸ This is most often accomplished by submitting new prior art which was not considered by the PTO Examiner. The accused infringer then argues that this new prior art anticipates the claimed invention (i.e. the invention is not new because someone else had done it before the inventor) or that the claimed invention would have been obvious to one of ordinary skill in the art based on this new "prior art."

Likewise, prior art impacts the enforceability of a patent. For example, parties can preclude the enforcement of a patent, without specifically addressing the patent's validity. This is accomplished by establishing that the patent owner either misused its patent rights, or committed a fraud on the PTO incident to obtaining patent protection. For example, if it can be shown that the inventor withheld material prior art from the patent office so as to commit fraud on the PTO, the patent may be found to be unenforceable against infringers, even if the patent satisfies all patentability requirements.

In each of these scenarios, prior art plays an important role both in defining the state of the art at the time a patent application is filed and in justifying conclusions on the patentability of an invention or the validity of a patent. Because of this, it is imperative that all sources of information that relate to an invention be integrated into patentability determinations.

A patent shall be presumed valid. Each claim of a patent (whether in dependent, dependent, or multiple dependent form) shall be presumed valid independently of the validity of other claims; dependent or multiple dependent claims shall be presumed valid even though dependent upon an invalid claim. The burden of establishing invalidity of a patent or any claim thereof shall rest on the party asserting such invalidity.

³⁰⁸ A party can also challenge the validity of a patent in a reexamination proceeding before the PTO. In such a proceeding, however, the basis for challenge is limited to novelty and obviousness in view of only certain types of prior art, namely, printed publications and patents.

Access to these sources of information, particularly patents and printed publications, has been vastly improved through the use of electronic or on-line database services. These services document the existence and content of patents and printed publications, and in some instances, provide access to the complete text and electronic images of such documents. It is important to recognize that the information that can be retrieved through these services invariably exists as an original, paper document disseminated through traditional publication channels (e.g., technical journals or publications, domestic and foreign patent documents).

The NII will dramatically change the way information is prepared and disseminated. It will improve the number, accessibility and quality of traditional on-line services. It will also foster creation of new forms of "electronic publications" that are different in character from traditional paper-based publications. Examples of such electronic publications could include electronic versions of traditional paper-based publications that supplement or reorganize presentation of the content of the paper-based publication; informally prepared information such as postings on electronic information forums and dissemination of news articles with technical content; and formally designed and developed electronic publications that are not printed on paper, but are entirely electronically disseminated.

Electronic publications such as these will supplement the wealth of publicly accessible information that is used in patentability determinations and validity challenges to issued patents. However, these new types of electronically disseminated documents are different in character from traditionally printed and indexed patents and publications. For example, the information contained in the disclosure of electronic documents may not be printed originally on paper, and as such, may have no tangible evidence regarding the date the information was first publicly disclosed or even as to its existence. No guidelines or industry standards presently govern the memorialization of either the contents or the date of public disclosure of information in such documents. The degree of distribution of, or public accessibility to electronic documents is not presently measured and may prove unmeasurable. Yet, these are key factors used to determine whether a document is in the prior art. In addition, the content of such documents, particularly informally

created documents, may not be subject to any form of peer review or content screening. This, in turn, could influence the evaluation of information in electronic documents that could affect patentability. Likewise, these factors may also have a direct impact on the challenges made to the validity of an issued patent based on prior art.

C. TRADEMARK

A trademark is quite different from either a copyright or a patent. A trademark is any word, name, symbol or device, or any combination thereof, that serves to identify and distinguish the source of one party's goods or services from those of another party. A service mark is the same as a trademark, except that it identifies and distinguishes the source of services rather than goods. In this report, the terms "trademark" and "mark" are intended to refer to all types of marks.

The purpose of a trademark is twofold – to identify the source of products or services and to distinguish the trademark owner's goods and services from those of others. As long as a trademark fulfills these functions, it remains valid. Trademark ownership rights in the United States arise through use of a mark. Continued use of a mark is necessary to maintain trademark rights. The owner of a trademark is entitled to the exclusive right to use the mark. This entitlement includes the ability to prevent the use, by unauthorized third parties, of a confusingly similar mark. Marks used by unrelated parties are confusingly similar if, by their use on the same, similar, or related goods or services, the relevant consumer population would think the goods or services come from the same source.

Unlike patent and copyright law, Federal trademark law coexists with state and common-law trademark rights. Therefore, registration at either the Federal or state level is not necessary to create or maintain ownership rights in a mark. For example, priority of trademark rights between owners of confusingly similar marks, regardless of whether the marks are Federally registered, is based upon first use of the mark.³⁰⁹

³⁰⁹ Priority may also be established by the filing date of a Federal registration based upon an intent to use a mark (15 U.S.C. § 1051(b) (1988)) or a foreign filing (15 U.S.C. § 1126 (1988)).

Federal trademark law is embodied in the Lanham Act³¹⁰ and is based upon the commerce clause of the Constitution.³¹¹ Therefore, to obtain a Federal trademark registration, in most cases³¹² the owner of a mark must demonstrate that the mark is used in a type of commerce that may be regulated by Congress.³¹³ Additionally, the Trademark Law Reform Act of 1988³¹⁴ amended the Lanham Act to establish trademark rights, which vest upon registration following use of the mark in commerce, as of the filing date of a trademark application indicating a bona fide intent to use the mark in commerce.³¹⁵

Remedies against trademark infringement and unfair competition are available to trademark owners under both state and Federal law.³¹⁶ In this regard, the owner of a Federal trademark registration has certain benefits. In a court proceeding, registration on the Principal Register constitutes prima facie evidence of the registrant's ownership of the

310 15 U.S.C. § 1051 *et seq.* (1988 & Supp. V 1993). The Lanham Act, as amended, forms Chapter 22 of Title 15 of the U.S. Code.

311 The first Federal trademark law in the United States was found unconstitutional because it was premised on the patent clause of the Constitution.

312 Certain foreign-based applications may register without a showing of use in commerce. 15 U.S.C. § 1126(e) (1988).

313 15 U.S.C. § 1127 (1988 & Supp. V 1993). "The word 'commerce' means all commerce which may lawfully be regulated by Congress." This includes interstate commerce, commerce between the United States and a foreign country, and territorial commerce.

314 P.L. 100-667, 1988 U.S.C.C.A.N. (102 Stat.) 3935.

315 15 U.S.C. § 1051(b) (1988).

316 *See* 15 U.S.C. §§ 1114 - 1121, 1125(a) (1988 & Supp. V 1993) for relevant Federal law provisions. State and common law unfair competition provisions include such torts as passing off and dilution.

mark.³¹⁷ Registration on the Principal Register may also be used as a basis to block importation of infringing goods³¹⁸ or to obtain remedies against a counterfeiter.³¹⁹ The Lanham Act provides that under certain conditions the right to use a registered mark may become incontestable.³²⁰ Additionally, the Lanham Act provides for cancellation of registrations on certain grounds.³²¹

Existing legal precedent accepts electronic transmission of data as a service and, thus, as a valid trademark use for the purpose of creating and maintaining a trademark.³²² Additionally, existing legal precedent applies the available remedies for infringement and unfair competition to such acts occurring through the unauthorized use of trademarks electronically.³²³ However, in the future, with widespread access to and

317 15 U.S.C. § 1057(b) (1988).

318 15 U.S.C. § 1124 (1988).

319 15 U.S.C. § 1116(d) (1988); 18 U.S.C. § 2320 (1988).

320 15 U.S.C. § 1065 (1988).

321 15 U.S.C. § 1064 (1988).

322 See In re Metriplex Inc., 23 U.S.P.Q.2d 1315 (TTAB 1992), where the PTO's Trademark Trial and Appeal Board authorized registration of a mark identifying "data transmission services accessed via computer terminal" and accepted, as evidence of use of the mark, a print-out of the mark as it appeared on the computer screen during transmission.

323 In the recent case Playboy Enters. v. Frena, *supra* note 115, the operator of a subscription computer bulletin board system (Frena) transmitted as part of its bulletin board system photographs owned by Playboy Enterprises Inc. (PEI). PEI's trademarks were obliterated on some photographs transmitted by Frena and PEI's "Playboy" and "Playmate" marks appeared on other photographs transmitted by Frena. These transmissions were without authorization from PEI. The court found, in part, that Frena infringed PEI's registered trademarks when it used PEI's "Playboy" and "Playmate" marks in unauthorized transmissions of PEI's photographs as part of its computer bulletin board system. The court also found Frena to have committed acts of unfair competition, in violation of Section 43(a) of the Lanham Act (15 U.S.C. § 1125(a) (Supp. V 1993)), both by obliterating PEI trademarks from photographs and by placing its own advertisement on PEI photographs. Such

use of the NII, both the legitimate and infringing electronic uses of trademarks may increase. Further, unfair competition may increase in the context of the NII to the extent that it may be easier to copy or remove trademarks from electronically transmitted information than from labeled products or from services identified in print media.

The first opportunity for a court to define the legal relationship between trademarks and the registration and use of site names on the Internet is presented in a recently filed action in Federal district court in the Southern District of New York. The owners of the MTV cable network ("MTV") have filed an action seeking injunctive relief and monetary damages from a former employee who is offering a daily report about the rock music industry on the Internet using the site name "mtv.com." MTV is alleging, *inter alia*, trademark infringement and unfair competition.³²⁴

acts made it appear as if PEI authorized Frena's use of the images on the bulletin board; see also Showtime/The Movie Channel, Inc. v. Covered Bridge Condominium Ass'n, 693 F. Supp. 1080 (S.D. Fla. 1988), in which the court found that interception of cable television programming broadcast via satellite which appropriates trademarks and trade names in a manner likely to cause confusion is unfair competition in violation of Section 43(a) of the Lanham Act (15 U.S.C. § 1125(a) (Supp. V 1993)).

In California, a U.S. District Court has entered a preliminary injunction against the owner of a computer bulletin board system based upon claims of copyright and trademark infringement and unfair competition. In Sega Enters. Ltd. v. MAPHIA, *supra* note 119, Sega demonstrated that the bulletin board system knowingly solicited the uploading and downloading of unauthorized copies of Sega's video games, and that whenever such a copy is played, Sega's trademark appears on the screen. Further, Sega's trademark appeared, with the BBS operator's knowledge, on file descriptors on the bulletin board. With regard to the trademark and unfair competition claims, the court concluded that there is support for the conclusion that the transferred games are counterfeit under the Lanham Act, and that confusion, if not on the part of the bulletin board users, is inevitable on the part of third parties who may see the copied games after they enter the stream of commerce.

324 To send and receive information on the Internet, various organizations connected to the Internet must register their domains, networks and autonomous systems numbers ("site names") with the Internet National Information Center (InterNIC). InterNIC performs this function under a cooperative agreement with the National Science Foundation. Within the

D. TRADE SECRET

Unlike many of the other forms of intellectual property protection previously mentioned, trade secrets are protected solely through state law, not Federal law. Trade secret protection is very limited. A trade secret holder is only protected from unauthorized disclosure and use of the trade secret by others and from another person obtaining the trade secret by some improper means.³²⁵

There are several factors used to determine if subject matter qualifies as a trade secret. Among the factors considered are the extent of measures taken by the trade secret owner to guard the secrecy of the information and the ease or difficulty with which the information could be properly acquired or duplicated by others.³²⁶ Based on these considerations, the general rule is that subject matter cannot be successfully protected as a trade secret if it is widely distributed. However, if adequate security precautions are taken to ensure that access to the subject matter being distributed is treated as secret, the subject matter may still be considered a trade secret.

context of a prescribed format, the Internet user may register any site name as long as the identical site name has not been previously registered with InterNIC by another party. According to InterNIC, there is no state or Federal statutory or regulatory authority under which InterNIC performs this registration function. Thus, InterNIC has no authority to refuse to register site names for a reason such as likelihood of confusion with a trademark. Furthermore, InterNIC does not conduct an examination of trademark or other records before registering a site name.

325 "A trade secret is commonly defined as any formula, pattern, device or compilation of information which is used in one's business, and which gives him an opportunity to obtain an advantage over competitors who do not know or use it." Restatement of Torts § 757, Comment b (1939).

326 *Id.* The trade secret owner may communicate the trade secret to others provided that those who the trade secret is communicated to pledge not to reveal the trade secret to others. *Id.*

Whether trade secret owners distribute their trade secrets through the NII will largely depend on the extent that they believe that the secrecy of the trade secret will not be compromised by such a distribution. Consequently, if the NII is going to be used as a tool for disseminating trade secret information the NII must be equipped with adequate security measures to ensure that trade secrets distributed through the NII will remain secret.³²⁷

In addition to the concerns regarding security precautions, issues of jurisdiction may also arise in the context of using the NII as a vehicle to transmit trade secrets. Because trade secret protection is protected by state law, not Federal law, which state law controls the resolution of a trade secrecy issue -- the place where the information is downloaded off the NII or the place where the trade secret owner first distributes the information via the NII for distribution -- may become an issue in trade secret disputes. These jurisdictional issues, however, are no more problematic than present jurisdictional issues associated with the distribution of trade secrets and can be adequately resolved by the choice of law rules presently codified in state law.

To some degree whether trade secret owners distribute their trade secrets through the NII may also depend on the type of information products and services being disseminated. For instance, it has been suggested that the most common way to protect software is through trade secret protection.³²⁸ Unlike most trade secret information, computer programs can be copied and used without the copier ever understanding or viewing the information in a comprehensible form. Although the trade secrecy problems associated with computer programs are not unique to the NII, the capabilities of the NII may cause these problems to become more prevalent.

327 See discussion of methods of protection for material distributed through the NII *infra* pp. 108-113.

328 See CONTU Final Report at 127.

II. TECHNOLOGY

Technology can be used to help protect copyrighted works against unauthorized access, reproduction, manipulation, distribution, performance or display. It can also be useful in the authentication of the integrity of copyrighted works and in the management and licensing of the rights in such works. Protection and management schemes based strictly on specific technologies may have limited usefulness due to the rapidly evolving nature of these technologies. Furthermore, if the systems developed are too cumbersome or complicated, consumers may reject works protected under such systems. However, to the extent that the marketplace will tolerate such measures, they can be useful in protecting copyrighted works.³²⁹

Technology-based protection of digital works can be implemented through hardware, software or a combination thereof. It can be implemented at the level of the copyrighted work or at other, more distant levels. It can be used to prevent or restrict access to a work, as well as reproduction, adaptation, distribution, performance or display of the work.

A. CONTROLLING ACCESS TO PROTECTED WORKS

Unauthorized access to copyrighted works can be denied in two general ways: by restricting access to the source of the work, and by restricting manipulation of the electronic file containing the work.

329 For a detailed discussion of these and other applications of technology that may be used to provide protection for copyrighted works, see Symposium, Technological Strategies for Protecting Intellectual Property in the Networked Multimedia Environment, cosponsored by the Coalition for Networked Information, Harvard University, Interactive Multimedia Association, and the Massachusetts Institute of Technology (April 2-3, 1993); see also Morton D. Goldberg, Copyright and Technology: The Analog, the Digital, and the Analogy, Symposium, WIPO Worldwide Symposium on the Impact of Digital Technology on Copyright and Neighboring Rights, 37 (March 31 - April 2, 1993).

1. CONTROLLING ACCESS AT THE SERVER LEVEL

Distribution of digital works can be controlled by controlling access to the source of the works -- information or data servers. Access to these servers can vary from completely uncontrolled access (e.g., the full contents of the server are accessible without restriction) to partially controlled access (e.g., unrestricted access is granted to only certain data on the server) to completely controlled access (e.g., no uncontrolled access in any form is permitted). Access control is affected through user identification and authentication procedures (e.g., log-in name and password) that deny access to unauthorized users to a server or to particular information on a server.³³⁰

Nearly all information providers, including commercial on-line services such as CompuServe and America Online and dial-up private bulletin boards, not only control access to their systems but also vary the nature of that access depending on the information a user wishes to access (e.g., access to certain data is conditioned on paying a higher fee, having greater access rights, etc.). On the Internet, users can connect to public servers through protocols such as gopher, file transfer protocol (ftp), telnet or the world wide web (www). Some information providers on the Internet grant full unrestricted access to all the information contained on their servers. This means that anyone can access any data stored on the servers. Other information providers restrict access to users with accounts or grant only limited access to unregistered users. For example, using ftp a user can often log on as an "anonymous" user (e.g., a user for which no account has been created in advance), but access through anonymous ftp is limited to certain data. Of course, an information provider can elect not to provide uncontrolled access (e.g., permit only those with accounts to access the server), provided appropriate security measures are implemented.

330 Protection of works by means of access control mechanisms assumes that the system is not vulnerable to external means to circumvent access control. Existing systems may be vulnerable, for example, through passive monitoring during the exchange of unencrypted passwords. As a consequence, much current effort is directed to improving security at the access control level.

Thus, control over access to a server may be used as one of the first levels of protection for the works found on it.

2. CONTROLLING ACCESS AT THE FILE LEVEL

A second level of control over protected works can be exerted through control measures tied to the electronic file containing the work. One type of restriction can be implemented through "rendering" or "viewing" software. Such systems require (1) a proprietary or unique file format that can only be read by certain software and that is developed or controlled by the information provider and (2) software that incorporates both a "control" measure to prevent viewing or use of a work without authorization from the information provider and "manipulation" functions to permit the user to view or use the work. Rendering or viewing software can be written to deny access if the user enters unauthorized identification or an improper password. Rendering software can also be written to deny access if the work is not an authorized copy (provided that sufficient information regarding authorized use is included in header information and it is sealed with a digital signature).³³¹

Another type of restriction is encryption. In its most basic form, encryption amounts to a "scrambling" of data using mathematical principles that can be followed in reverse to "unscramble" the data. Encryption technologies can be used to deny access to the work in a usable form. File encryption simply converts a file from a manipulatable file format (e.g., a word processor document or a picture file that can be opened or viewed by appropriate general purpose software packages) to a scrambled format.³³² Authorization in the form of possession of an appropriate

331 For example, the software may deny access to a work if the electronic file containing the work has been altered or information stored in the file does not match data supplied by a user necessary to open and use the file. See discussion of digital signatures *infra* pp. 113-14.

332 Rendering or viewing software may integrate encryption and file manipulation into a single software package. In other words, the rendering software, after getting a password, will decode the file and permit the user to

password or "key" is required to "decrypt" the file and restore it to its manipulatable format.

Encryption techniques use "keys" to control access to data that has been "encrypted." Encryption keys are actually numbers that are plugged into a mathematical algorithm and used to scramble data using that algorithm. Scrambling simply means that the original sequence of binary digits (i.e., the 1s and 0s that make up a digital file) is transformed using a mathematical algorithm into a new sequence of binary digits (i.e., a new string of 1s and 0s). The result is a new sequence of digital data that represents the "encrypted" work.³³³ Anyone with the key (i.e., the number used to scramble the data according to the specified mathematical algorithm) can decrypt the work by plugging the number into a program that applies the mathematical algorithm in reverse to yield the original sequence of digital signals.³³⁴ Although perhaps most commonly thought of as a tool for works transmitted via computer networks, encryption can be and is used with virtually all information delivery technologies, including telephone, satellite and cable communications. Of course, once the work is decrypted by someone with the key, there may be no technological protection for the work if it is stored and subsequently distributed in its "decrypted" or original format.

manipulate the work (e.g., view it or listen to it), but only with the provided rendering software.

333 An algorithm is a set of logical rules or mathematical specification of a process which may be implemented in a computer.

334 A widely publicized encryption technique is referred to as "public key" encryption. Public key encryption transforms the work using an algorithm requiring two particular keys -- a "public" key and a "private" key. The keys have complementary roles. Data encrypted using a public key can only be decrypted using a secret, private key. For instance, a copyright owner could encrypt a work using the public key of the intended recipient; then, only the intended recipient could decrypt a copy of the work with his private key. No secret (private) keys need to be exchanged in this transaction. Without the private key of the intended recipient, the work cannot be read, manipulated or otherwise deciphered by other parties. Of course, if a decrypted copy is made and shared, then others could manipulate the work unless other means are used to protect it.

Requests for the export of cryptographic technologies are reviewed by the U.S. State Department. Although some cryptographic technologies used to encrypt communications are restricted from export, technologies used to identify and authenticate users and files are generally not restricted. There is an ongoing review of policies governing the export of computer and networking technologies, and there has been some relaxation of prior controls.

B. CONTROLLING USE OF THE WORK

Hardware and/or software can provide protection against unauthorized uses of copyrighted works. For instance, the Audio Home Recording Act requires circuitry in digital audio recording devices and digital audio interface devices that controls serial copying.³³⁵ The circuitry in the hardware is programmed to read certain coding information contained in the "digital subcode channel" of digital sound recordings and broadcasts. Based on the information it reads, the hardware circuitry will either permit unrestricted copying, permit copying but label the copies it makes with codes to restrict further copying, or disallow copying. The serial copy management system implemented by this circuitry allows unlimited first generation copying – digital reproduction of originals (such as CDs distributed by record companies), but prevents further digital copying using those reproductions.³³⁶

Systems such as these can be implemented through hardware, software or both, using the concepts discussed above (e.g., rendering software and encryption technology). For example, files containing works can include instructions used solely to govern or control distribution of the work. This information might be placed in the "header" section of a file³³⁷ or another part of the file. In conjunction

³³⁵ See 17 U.S.C. § 1002 (Supp. V 1993).

³³⁶ See H.R. Rep. No. 102-873(I), 102d Cong., 2d Sess., reprinted in 1992 U.S.C.C.A.N. 3578, 3579-80, 3583 n15.

³³⁷ A "header" is a section of a digital work where information, data, codes and instructions may be embedded. Such information may actually be

with receiving hardware or software, the information, whether in the header or elsewhere, can be used to limit what can be done with the original or a copy of the file containing the work. It can limit the use of the file to read-, view-, or listen-only. It can also limit the number of times the work can be retrieved, opened, duplicated or printed.

C. AUTHENTICATING THE WORK

Mathematical algorithms can be used to create digital signatures that, in effect, place a "seal" on a digitally represented work. These algorithms can be implemented through software or hardware, or both. Digital signatures can play an important role in ensuring data integrity.

A digital signature is a unique sequence of digits that is computed based on (1) the work being protected, (2) the digital signature algorithm being used, and (3) the key used in digital signature generation.³³⁸ Generating a digital signature uses cryptographic techniques, but is not encryption of the work; the work may remain unencrypted so it can be accessed and used without decryption. In fact, digital signatures and encryption can be used simultaneously to protect works. Generally, a signature is computed for a copyrighted work first and then the work (including the seal) is encrypted. When the work is to be used, the work is decrypted, then the signature (i.e., the seal) is verified to be sure the work has not been modified (either in its original or encrypted form). If the work is never changed, the seal need never be removed or

embedded anywhere in the work, but for ease of reference, this Report refers to such information as embedded in a header. Terms such as "label" and "wrapper" are also used to refer to what this Report refers to as a "header."

338 The signature is generated using the binary digits of the work plus the value of the private key as inputs to the computation defined by the algorithm. Thus, the digital signature for an information object is a unique sequence of digits for that work. Specifically, a signature is not the same for different works using the same private key.

changed. If the work is changed, a new seal must be computed on the revised information.

Generating a digital signature is called "signing" the work. Both the digital signature and the public key are often appended to signed copyrighted works (or they may be stored in a header). The signature serves as a "seal" for the work because the seal enables the information to be independently checked for unauthorized modification.³³⁹ If the seal is verified (independently computed signature matches the original signature), then the copyrighted work is a bona fide copy of the original work -- i.e., nothing has been changed in either the header or the work itself.

D. MANAGING RIGHTS IN THE WORK

Software-based systems for tracking and monitoring uses of copyrighted works are contemplated in the development of the NII. Software-based systems may also be used to implement licensing of rights and metering of use. A combination of access controls, encryption technologies and digital signatures can be used by copyright owners to protect, license and authenticate their works on the NII. These security measures must be carefully designed and implemented to ensure that they protect the copyrighted works and are not defeated.

Information included in files can be used to inform the user about ownership of rights in a work and authorized uses of it. For instance, information can be stored in the header of a file regarding authorship, copyright ownership, date of creation or last modification, and terms and conditions of authorized uses. It can also support search and retrieval based on bibliographic records.

³³⁹ Anyone who has access to an information object, also has access to the digital signature for the object and the public key of the rightsholder. Consequently, the digital signature for the object may be recomputed and used to independently confirm the integrity of the object by comparing it to the digital signature appended to the object.

Electronic licenses may be used in connection with works offered via the NII. Electronic contracts may be analogous to the "shrink wrapped" licenses used for prepackaged software.³⁴⁰ Providers may inform the user that a certain action -- the entering of a password, for instance, to gain access to the service or a particular work, or merely the use of the service -- will be considered acceptance of the specified terms and conditions of the electronic license. Payments for such licenses also may be made via the NII.³⁴¹

The Library of Congress' Electronic Copyright Management System may be instrumental in rights management. The proposed system, which is under development, has three distinct components: (1) a registration and recordation system, (2) a digital library system with affiliated repositories of copyrighted works, and (3) a rights management system.³⁴² The system will serve as a testbed to gain experience with the technology, identify issues, prototype

340 "Shrink wrapped" is a term used to describe licenses and contracts which are enclosed with prepackaged software and which contain a notice whose operative message is: "Opening this package constitutes agreement to the terms and conditions of a legally binding agreement stated below. If you do not agree to these terms and conditions, then do not open the package."

341 The IITF Committee on Applications and Technology is addressing electronic commerce issues, including the electronic transfer of funds through the NII.

342 See R.E. Kahn, "Deposit, Registration and Recordation in an Electronic Copyright Management System," Proceedings of Technical Strategies for Protecting Intellectual Property in the Networked Multimedia Environment, Interactive Multimedia Assoc., Annapolis, MD, 21401-1933, Jan. 1994. The registration and recordation system will be operated by the Library of Congress and will enable electronic filing of documents, automated registration and recordation of transfers of ownership and other copyright-related documents. The digital library system will be composed of a set of distributed repositories for copyrighted works, and will support search and retrieval based upon an electronic bibliographic record. The rights management system will be a distributed system which will permit use of selected copyrighted materials on the Internet, and will have some on-line rights-granting services. Electronic mail will be used to license nonexclusive rights, with or without recordation of the transactions.

appropriate standards, and serve as a working prototype if full deployment is pursued later.

E. DEVELOPMENT OF STANDARDS

Some level of interconnection, interoperability and standardization of telecommunications, computer, wireless, satellite, broadcast and cable TV technologies and networks may be essential to achieve the Administration's vision of the NII. Government, industry or the marketplace may desire or require certain technological standards related to the NII. There has been much discussion of standardization of encryption technology, protocols, interfaces, headers and electronic licenses for purposes such as interoperability, interconnectivity and ease of information management or use.

III. EDUCATION

Effective education of the public about intellectual property rights is crucial to the successful development of the NII. There seems to be an attitude by some on the Internet, for instance, that you check your copyrights at the door when you enter that domain. There is a general lack of awareness by the public about intellectual property rights in their own works, as well as in the works of others. The task of education, however, is not without difficulty.

Perhaps the best places to start will be the schools, where millions of children will be connected to the NII. There is, however, no "national curriculum" to which a special section on NII-related intellectual property rights could be added. However, a development and distribution process for wide-spread intellectual property education can be established, by working with, among others, those responsible for defining the role the advanced information infrastructure will play in schools, as well as the state and national educational organizations involved in setting the educational principles and standards utilized in the curricula of more than 17,000 school districts throughout the United States.

A brief review of the major organizations involved in education technology for schools is set forth below. This list is not intended to be exhaustive. Efforts to effectively distribute an intellectual property education program will involve national, state and local organizations.

In addition to local school district officials, there are numerous educational organizations actively involved in devising plans and recommendations on how services available via the NII should be delivered and used by schools. The school audience to be reached includes students of all ages, as well as administrators, teachers and professors. Both public and private school systems must be involved.

The kindergarten to twelfth-grade (K-12) school audience to be educated about intellectual property and the NII can be broadly classified into three segments: learners, pre-service, and in-service or professional development. The "learners" segment consists of children who are in the school system. The "pre-service" segment

includes students currently in the school system who will go on to become teachers. The "in-service" or "professional development" segment consists of those professionals who are currently teachers or education administrators. Each group must be reached. The teachers who are educated about intellectual property rights today will be replaced in the future by the children moving through the school systems now. A similar approach can be taken in defining the audience to be reached on the university and graduate school level.

An intellectual property education program could be developed by individual state school officials, or distributed to them for their consideration. The Council of the Chief State School Officers (CCSSO) could be helpful in that regard.

Other educational organizations could also be useful in the promotion of intellectual property education. These organizations include the National Education Association, the American Federation of Teachers, the National Board for Professional Teaching Standards, the National Association of Teachers Colleges, the American Association of Community Colleges, the National School Board Association, the National Association of Elementary School Principals, the National Association of Secondary School Principals, the National Association of Independent Schools, the National Council of Teachers of Mathematics, the National Council of Teachers of English, and the National Science Teachers Association. Contact with the National Parent Teachers Association may also prove useful in reaching the parents of school-age children.

Intellectual property education can also be incorporated into the plans and recommendations that are currently being developed by educational organizations on how educators can best utilize the NII. The National Education Goals Panel and the recently created National Educational Standards and Improvement Council ("NESIC") are both involved in the mission of promoting national education goals, including educational standards. As part of this effort, for example, the National Education Goals Panel is working on a set of principles for technology and how technology can be used in promoting education. Intellectual property education materials could be included as part of the Panel's principles under development in the area of staff and child development. Educational technology specialists in the Department of Education and other educational

organizations, who share the objective of bringing the NII to schools, are also great resources.

The public library is another ideal place for intellectual property education. National library organizations, such as the American Library Association, the American Association of Law Libraries and the Special Libraries Association, could provide invaluable assistance. The nationwide network of 78 Patent and Trademark Depository Libraries could also be instrumental in the dissemination of intellectual property information to the public. Many of these depository libraries are affiliated with universities and colleges throughout the country.

Additional means of education, particularly those that use the NII itself, will also be explored and developed.

IV. PRELIMINARY FINDINGS AND RECOMMENDATIONS

These findings and recommendations represent the result of the Working Group's examination and analysis to date. While the findings and recommendations are preliminary, specific language is offered with any proposals for legislative change to elicit and facilitate more detailed public comment.

A. LAW

It is difficult for intellectual property laws to keep pace with technology. When technological advances cause ambiguity in the law, courts rely on the law's purposes to resolve that ambiguity. However, when technology gets too far ahead of the law, and it becomes difficult and awkward to apply the old principles, it is time for reevaluation and change. "Even though the 1976 Copyright Act was carefully drafted to be flexible enough to be applied to future innovations, technology has a habit of outstripping even the most flexible statutes."³⁴³

The coat is getting a little tight.³⁴⁴ There is no need for a new one, but the old one needs a few alterations.

1. DISTRIBUTION BY TRANSMISSION

a. THE DISTRIBUTION RIGHT

The Copyright Act gives a copyright owner the exclusive right "to distribute copies or phonorecords of the copyrighted work" to the public. A copy or phonorecord is a material object in which a copyrighted work is fixed, such as a compact disc, a videocassette or a paperback book. It is not clear under the current law that a

³⁴³ H.R. Rep. No. 101-735, 101st Cong., 2d Sess. 7 (1990), reprinted in 1990 U.S.C.C.A.N. 6935, 6938 (report accompanying legislation granting copyright owners of computer software an exclusive rental right).

³⁴⁴ See supra p. 9.

transmission can constitute a distribution of copies or phonorecords of a work. Yet, in the world of high-speed, communications systems, it is possible to transmit a copy of a work from one location to another. This may be the case, for instance, when a computer program is transmitted from one computer to ten other computers. When the transmission is complete, the original copy remains in the transmitting computer and a copy resides in the memory of, or in storage devices associated with, each of the other computers.³⁴⁵ The transmission results essentially in the distribution of ten copies of the work. Therefore, the Working Group recommends that the Copyright Act be amended to reflect that copies of works can be distributed to the public by transmission, and such transmissions fall within the exclusive distribution right of the copyright owner.

The Working Group recommends that the Copyright Act be amended to recognize that copies or phonorecords of works can be distributed to the public by transmission, and that such transmissions fall within the exclusive distribution right of the copyright owner. The Working Group recommends that Section 106(3) be amended to read as follows:³⁴⁶

(3) to distribute copies or phonorecords of the copyrighted work to the public by sale or other transfer of ownership, ~~or by rental, lease, or lending, or by~~ transmission.

The Working Group also recommends other related amendments to the definition of "transmit" and the importation prohibitions.

A transmission is not necessarily a transmission of a performance or display of a work.³⁴⁷ A transmission may be a

345 In contrast to "standard" distributions, in the case of a distribution by transmission, the distributor also retains a copy of the work.

346 Any language added by a proposed amendment is underscored. Proposed deletions are indicated by ~~strike-throughs~~.

347 See 17 U.S.C. § 101 (1988) (definition of transmissions of performances or displays, not of all transmissions).

transmission of a reproduction of a work. Therefore, the Working Group recommends that the definition of "transmit" in Section 101 of the Copyright Act be amended to clarify that reproductions, as well as performances and displays, can be transmitted, and to delineate between those transmissions that are communications of performances or displays and those that are distributions of reproductions.

How to delineate between these types of transmissions is a difficult, but necessary, issue to resolve. The transmissions themselves hold no clues; one type often looks the same as the other during the transmission. To delineate between those transmissions that are communications of performances or displays and those that are distributions of reproductions, then, one must look at both ends of the transmission. Did the transmitter intend to communicate a performance or display of the work or, rather, to distribute a reproduction of the work? Did the receiver simply hear or see the work or, rather, receive a copy of it? If the transmitter intends to both communicate a performance or display and distribute a reproduction – or if the receiver hears or sees a performance or display of the work and receives a copy of it, what is the transmission? The resolution of these issues should rest upon a "primary purpose or effect" analysis of the transmission.

The Working Group, therefore, recommends that the definition of "transmit" be amended to read as follows:

To "transmit" a performance or display is to communicate it by any device or process whereby images or sounds are received beyond the place from which they are sent. To "transmit" a reproduction is to distribute it by any device or process whereby a copy or phonorecord of the work is fixed beyond the place from which it was sent. In the case when a transmission may constitute both a communication of a performance or display and a distribution of a reproduction, such transmission shall be considered a distribution of a reproduction if the primary purpose or effect of the transmission is to distribute a copy or phonorecord of the work to the recipient of the transmission.

The Working Group also recommends that the prohibitions on importation be amended to reflect the fact that, just as copies of copyrighted works can be distributed by transmission in the United States, they can also be imported into the United States by transmission. Although we recognize that the U.S. Customs Service cannot, for all practical purposes, enforce a prohibition on importation by transmission, given the global dimensions of the information infrastructure of the future, it is important that copyright owners have the other remedies for infringements of this type available to them. Therefore, the Working Group recommends that Section 602 of the Copyright Act be amended to read as follows:

(a) Importation into the United States, whether by carriage of tangible goods or by transmission, without the authority of the owner of copyright under this title, of copies or phonorecords of a work that have been acquired outside the United States is an infringement of the exclusive right to distribute copies or phonorecords under section 106, actionable under section 501.

b. PUBLICATION

The legislative history to the Copyright Act makes clear that "any form of dissemination in which a material object does not change hands . . . is not a publication no matter how many people are exposed to the work."³⁴⁸ Thus, a transmission of a performance or display via the NII would not constitute publication, because, technically, a material object does not change hands.³⁴⁹ However, in the case of a transmission of a reproduction, the recipient of the transmission ends up with a copy of the work. Therefore, the Working Group recommends that the definition of "publication" in Section 101 of the Copyright Act be amended to include the concept of distribution by transmission:

348 See House Report at 138 (emphasis added), reprinted in 1976 U.S.C.C.A.N. 5754.

349 See discussion supra notes 34-35 and accompanying text.

"Publication" is the distribution of copies or phonorecords of a work to the public by sale or other transfer of ownership, ~~or~~ by rental, lease, lending, or by transmission. The offering to distribute copies or phonorecords to a group of persons for purposes of further distribution, public performance, or public display, constitutes publication. A public performance or display of a work does not of itself constitute publication.³⁵⁰

c. FIRST SALE DOCTRINE

The first sale doctrine allows the owner of a particular, lawfully-made copy of a work to dispose of it in any manner, with certain exceptions,³⁵¹ without infringing the copyright owner's exclusive right of distribution. It seems clear that the first sale model -- in which the copyright owner parts company with a tangible copy -- should not apply with respect to distribution by transmission, because under current applications of technology, a transmission involves both the reproduction of the work and the distribution of the reproduction. In the case of transmissions, the owner of a particular copy of a work does not "dispose of the possession of that copy or phonorecord." A copy of the work remains with the first owner and the recipient of the transmission receives a reproduction of the work. Therefore, to make clear that the first sale doctrine does not apply to transmissions, the Working Group recommends that Section 109 of the Copyright Act be amended to read as follows:

- (a) (1) Notwithstanding the provisions of section 106(3), the owner of a particular copy or phonorecord

350 The second sentence of the definition -- adopted originally to ensure that theatrically distributed movies were "published" and thus eligible for copyright protection under prior law -- would appear to apply often to works made available by display on bulletin board systems or similar services.

351 See discussion of rental rights with regard to phonorecords and copies of computer programs supra notes 167-69 and accompanying text.

lawfully made under this title, or any person authorized by such owner, is entitled, without the authority of the copyright owner, to sell or otherwise dispose of the possession of that copy or phonorecord.

(2) This subsection does not apply to the sale or other disposal of the possession of that copy or phonorecord by transmission.

d. OTHER RELATED AMENDMENTS

The legislative changes outlined above give rise to some difficult issues. The term "distribute" (or a variant form of the term), which is not defined, is used more than 90 times in the Copyright Act.³⁵² Moreover, the term is used in the definition of "publication," which, in its variant forms, is used more than 100 times. Therefore, care must be taken to identify and analyze all of the ramifications of a change in the Section 106 right to distribute.

The Working Group is in the process of completing that process and welcomes public comment in this regard. The Working Group is analyzing whether each of the limitations of the copyright owner's distribution right should apply with respect to distribution by transmission.³⁵³

2. TECHNOLOGICAL PROTECTION

The ease of infringement and the difficulty of detection and enforcement will cause copyright owners to look to technology, as

352 This number does not include the use of the term in Chapters 9 and 10, which have separate definitions of the term for the purposes of those chapters. It also does not include the 30 some times the Act refers to the distribution of royalties collected under the compulsory licensing systems.

353 These limitations include the limitation with regard to distribution by libraries (§ 108), the limitation with regard to ephemeral recordings (§ 112(c)), and the mechanical compulsory license (§ 115).

well as the law, for protection of their works. However, it is clear that technology can be used to defeat any protection technology provides. The Working Group finds that legal protection alone may not be adequate to provide incentive to authors to create and to disseminate works to the public, unless the law also provides some protection for the technological processes and systems used to prevent unauthorized uses of copyrighted works.

Sufficient protection cannot be gained through suits for contributory infringement. Under the Sony decision, a manufacturer is not liable for contributory infringement if the device is capable of a "substantial noninfringing use," even if the device is rarely or never put to those uses, and even if the use to which it is primarily put is infringing.

The Working Group finds that prohibition of devices, products, components and services that defeat technological methods of preventing unauthorized use is in the public interest. Consumers of copyrighted works pay for the acts of infringers. The price of copyrighted works for legitimate users is higher due to infringement losses suffered by copyright owners. The public will also have access to more works via the NII if copyright owners can more effectively protect their works from infringement.

Therefore, the Working Group recommends that the Copyright Act be amended to prohibit the importation, manufacture and distribution of devices, as well as the provision of services, that defeat anti-copying systems.

Legislation of this type is not unprecedented. The Copyright Act already protects sound recordings and musical works by prohibiting the circumvention of any program or circuit that implements a serial copy management system or similar system included in digital audio recording devices and digital audio interface devices. Section 1002 provides:

No person shall import, manufacture, or distribute any device, or offer or perform any service, the primary purpose or effect of which is to avoid, bypass, remove, deactivate, or otherwise circumvent any program or

circuit which implements, in whole or in part, a [serial copy management system or similar system].³⁵⁴

The Communications Act includes a similar provision:

Any person who manufactures, assembles, modifies, imports, exports, sells, or distributes any electronic, mechanical, or other device or equipment, knowing or having reason to know that the device or equipment is primarily of assistance in the unauthorized decryption of satellite cable programming, or is intended for any other activity prohibited by [Section 605(a)] shall be fined not more than \$500,000 for each violation, or imprisoned for not more than 5 years for each violation, or both. For purposes of all penalties and remedies established for violations of this paragraph, the prohibited activity established herein as it applies to each such device shall be deemed a separate violation.³⁵⁵

Precedent for this type of legislation is also found in the international arena. The North American Free Trade Agreement requires each party to make it a criminal offense to "manufacture, import, sell, lease or otherwise make available a device or system that is primarily of assistance in decoding an encrypted program-carrying satellite signal without the authorization of the lawful distributor of such signal" ³⁵⁶ In 1988, the United Kingdom enacted legislation prohibiting the manufacture, distribution or sale of a device designed or adapted to circumvent copy-protection systems.³⁵⁷

354 17 U.S.C. § 1002(c) (Supp. V 1993).

355 47 U.S.C. § 605(e)(4) (1988).

356 See NAFTA, *supra* note 289, at art. 1707(a). The NAFTA also requires parties to make it a civil offense to "receive, in connection with commercial activities, or further distribute, an encrypted program-carrying satellite signal that has been decoded without the authorization of the lawful distributor of the signal or to engage in any activity prohibited under [the criminal provisions]." See NAFTA, *supra* note 289, at art. 1707(b).

357 See Copyright, Designs and Patents Act of 1988, Part VII, § 296.

The Working Group recommends that Chapter 5 of the Copyright Act be amended to include the following new section 512:

No person shall import, manufacture or distribute any device, product, or component incorporated into a device or product, or offer or perform any service, the primary purpose or effect of which is to avoid, bypass, remove, deactivate, or otherwise circumvent, without authority of the copyright owner or the law, any process, treatment, mechanism or system which prevents or inhibits the exercise of any of the exclusive rights under Section 106.

The Working Group recommends other related amendments to provide civil causes of action and remedies for violations of the proposed prohibition. The Working Group recommends that Section 501 of the Copyright Act be amended to read as follows:

(a) Anyone who violates any of the exclusive rights of the copyright owner as provided by sections 106 through 118 or of the author as provided in section 106A(a), or who imports copies or phonorecords into the United States in violation of section 602, is an infringer of the copyright or right of the author, as the case may be. Anyone who violates section 512 is an infringer of the copyright in a work that utilizes the process, treatment, mechanism or system which the violator's device, product, component or service circumvents.

The Working Group recommends that Section 503 of the Copyright Act be amended to read as follows:

(a) At any time while an action under this title is pending, the court may order the impounding, on such terms as it may deem reasonable, of all copies or phonorecords claimed to have been made or used in violation of the copyright owner's exclusive rights, ~~and~~ of all plates, molds, matrices, masters, tapes, film negatives, or other articles by means of which such copies or

phonorecords may be reproduced, and of all devices, products or components claimed to have been imported, manufactured or distributed in violation of section 512.

(b) As part of a final judgment or decree, the court may order the destruction or other reasonable disposition of all copies or phonorecords found to have been made or used in violation of the copyright owner's exclusive rights, ~~and~~ of all plates, molds, matrices, masters, tapes, film negatives, or other articles by means of which such copies or phonorecords may be reproduced, and of all devices, products or components found to have been imported, manufactured or distributed in violation of section 512.

The Working Group also recommends that Section 506 of the Copyright be amended to read as follows:

(a) Criminal Infringement. -- Any person who infringes a copyright willfully and for purposes of commercial advantage or private financial gain shall be punished as provided in section 2319 of title 18.

(b) Forfeiture and Destruction. -- When any person is convicted of any violation of subsection (a), the court in its judgment of conviction shall, in addition to the penalty therein prescribed, order the forfeiture and destruction or other disposition of all infringing copies or phonorecords and all implements, devices, products, components or equipment used in the ~~manufacture of such infringing copies or phonorecords~~ infringement.

The proposed prohibition on the importation, manufacture and distribution of devices, products and components, and the provision of services, that circumvent anti-copying systems is intended to assist copyright owners in the protection of their works.³⁵⁸

³⁵⁸ Legislation of a similar type has been introduced with respect to technological protection of audiovisual works. See, e.g., S. 1096, 102d Cong., 1st Sess., 137 Cong. Rec. S. 6034 (1991); H.R. 3568, 101st Cong., 1st Sess., 135 Cong. Rec. H. 7924 (1989).

Copyright owners who use anti-copying systems to protect their works may bring actions for infringement against persons who, inter alia, manufacture or distribute devices whose primary purpose or effect is circumvention of those systems. The Working Group recognizes, however, that copyright owners may wish to use such systems to prevent the unauthorized reproduction, for instance, of their works, but may also wish to allow some users to deactivate the systems. Therefore, the proposed legislation prohibits only those devices or products, the primary purpose or effect of which is to circumvent such systems without authority. That authority may be granted by the copyright owner or by limitations on the copyright owner's rights under the Copyright Act.

Standing to bring actions for violations of the proposed legislation is granted only to copyright owners whose works are protected by the system that the violator's device, product, component or service circumvents; the manufacturers of anti-copying systems defeated by violators may not bring actions for the defeat of such systems.

The Working Group is not without some concerns regarding this proposal, particularly with regard to works whose term of copyright protection expires but are still protected by anti-copying systems, and works in the public domain. However, the Working Group believes the "primary purpose or effect" standard will allow for the distribution of devices that deactivate the anti-copying systems used in such works, and that the benefits of the proposed legislation outweigh the possible problems.

3. COPYRIGHT MANAGEMENT INFORMATION

In the future, the copyright management information associated with a work -- such as the name of the copyright owner and the terms and conditions for uses of the work -- may be critical to the efficient operation and success of the NII. The public should be protected from fraud in the creation or alteration of such information. Therefore, the Working Group recommends that the Copyright Act be amended to prohibit fraudulent inclusion of

copyright management information and fraudulent removal or alteration of such information. The Working Group recommends that Section 101 of the Copyright Act be amended to include the following definition:

"Copyright management information" means information associated with a copyrighted work, including, but not limited to, the name and other identifying information of the copyright owner, the terms and conditions for uses of the work, and identification codes such as an ISBN number.

The Working Group also recommends that Section 506 of the Copyright Act, which contains the prohibitions against fraudulent copyright notices and fraudulent removal of copyright notices, be amended to include the following new subsections (g) and (h):

(g) Fraudulent Copyright Management Information. -- Any person who, with fraudulent intent, digitally links with a copy of a copyrighted work copyright management information that such person knows to be false, or who, with fraudulent intent, publicly distributes or imports for public distribution any work with which copyright management information that such person knows to be false is linked, shall be fined not more than \$2,500.

(h) Fraudulent Removal of Copyright Management Information. -- Any person who, with fraudulent intent, removes or alters any copyright management information digitally linked with a copy of a copyrighted work shall be fined not more than \$2,500.

4. PUBLIC PERFORMANCE RIGHT

Transmissions of sound recordings may eventually replace the current forms of distribution of phonorecords. In the very near future, consumers will be able to receive digital transmissions of sound recordings on demand -- for performance in the home or for downloading -- from the so-called celestial jukebox. The legal nature of such transmissions -- whether they are performances or

distributions -- has been widely debated. As discussed above, the Working Group recommends that Section 106 of the Copyright Act be amended to make clear that copies or phonorecords can be distributed by transmission. The Working Group also recommends that a "primary purpose or effect" test be used to determine whether a transmission is a performance (or display) or a distribution. However, many of these transmissions will clearly constitute exercise of the public performance right -- a right which the Copyright Act fails to grant to copyright owners of sound recordings.³⁵⁹

The lack of a public performance right in sound recordings under U.S. law is an historical anomaly that does not have a strong policy justification -- and certainly not a legal one. Sound recordings are the only copyrighted works that are capable of being performed that are not granted that right. Therefore, to play a record on the radio without infringement liability, a radio station must get a license from, and pay a royalty to, the copyright owner of the underlying musical work (i.e., the person or entity who owns the rights in the notes and the lyrics), but it does not have to obtain permission from, or pay a license fee to, the copyright owner of the sound recording or the performer on the record. The Working Group believes that it is time to rectify this inequity.

The Working Group notes that the Administration supports two bills introduced in Congress that would grant a limited performance right to sound recordings. The bills, H.R. 2576 and S. 1421, would add to the exclusive rights of a copyright owner in a sound recording the right to perform or authorize the performance of the sound recording by "digital transmission." The right granted in the bill is not the full performance right granted to other copyrighted works. For instance, the legislation would not change the law with respect to live public performances. It would also not touch analog transmissions -- the transmissions currently received over the radio.

359 Some transmissions that clearly constitute public performances may, in effect, substitute for distributions in the future. If consumers are offered a service through which they can receive a performance of any sound recording at any time, they may stop buying phonorecords. The market for distributed phonorecords may shrink to include only the providers of that service to consumers.

It would only grant a right with respect to transmissions in a digital format -- those that pose the greatest threat to the copyright owners of sound recordings.

5. FAIR USE

The Working Group has significant concerns regarding the ability of the limitations on copyright owners' exclusive rights -- particularly those limitations found in Sections 107 (fair use), 108 (library exemptions) and 110(1) and (2) (educational uses) -- to provide the public with adequate access to copyrighted works transmitted via the NII. As more and more works are available primarily or exclusively on-line, it is critical that researchers, students and other members of the public have opportunities on-line equivalent to their current opportunities off-line to browse through copyrighted works in their schools and public libraries.

The Copyright Act exists for the benefit of the public. To fulfill its constitutional purpose, the law should strive to make the information contained in protected works of authorship freely available to the public. "Freely available," of course, does not necessarily mean "available free." The Working Group does not believe that authors should be required to donate access time to their works on-line, but some reasonable approach must be adopted to ensure that the economically disadvantaged in this country are not further disadvantaged or disenfranchised by the information revolution. Public libraries and schools, and the access to information that they provide, have been important safeguards against this nation becoming a nation of information "haves" and "have nots." We must ensure that they continue to be able to assume that role.

Guidelines for library and educational use of printed matter and music were voluntarily adopted by diverse parties and set out in the House and Conference reports accompanying the 1976 revisions to the Copyright Act.³⁶⁰ While the principles should still be

³⁶⁰ See House Report at 68-79, reprinted in 1976 U.S.C.C.A.N. 5659, 5681-92; Conference Report at 72-73, reprinted in 1976 U.S.C.C.A.N. 5810, 5813-14.

applicable, it is difficult and, perhaps, inappropriate, to apply the specific language of some of those guidelines in the context of digital works and on-line services.

Therefore, the Working Group will sponsor a conference to bring together copyright owner and user interests to develop guidelines for fair uses of copyrighted works by and in public libraries and schools. To increase the productivity of the conference, the number of participants will be limited. However, attendance at the conference will be open to the public. Those wishing to participate in the conference should send a one-page request to Terri A. Southwick, Attorney-Advisor, Office of Legislative and International Affairs, U.S. Patent and Trademark Office, Box 4, Washington, D.C. 20231. Requests must be received by July 25, 1994, and should include a brief description of the interests that would be represented at the conference by the requestor.

The location and date of the conference will be announced in the press, on the IITF Bulletin Board, and in the Federal Register.

6. LICENSING

With limited exceptions, intellectual property law leaves the licensing of rights to the marketplace. In certain circumstances, particularly where transaction costs are believed to dwarf per-transaction royalties, Congress has found it necessary to provide for compulsory licenses.³⁶¹ The Working Group finds that under current conditions, additional compulsory licensing of intellectual property rights is neither necessary nor desirable. Transaction costs -- and the attendant savings from compulsory licensing -- can be minimized in a digital environment. The marketplace should be allowed to develop whatever legal licensing systems may be appropriate for the NII.

³⁶¹ See, e.g., 17 U.S.C. § 111 (1988 & Supp. V 1993). The cable compulsory license was enacted to reduce the need for negotiations among thousands of program copyright owners and hundreds of cable systems for the right to retransmit the copyrighted works programs that are included in the broadcast signals retransmitted by cable systems.

7. INTERNATIONAL

There is little dispute that worldwide high-speed digital communications networks will have an enormous effect on the way in which works of authorship will be created, stored, communicated to the public, distributed and paid for. This communication revolution is now bringing new opportunities and new challenges to creators and users of intellectual property. The full implementation of the NII and the GII will have an immense effect on our economy, and implementation of such systems internationally will have an equally broad impact on world-wide commerce. We must be committed to finding the means to preserve the integrity of intellectual property rights in the materials that will flow in the commerce created in this environment. This is a daunting challenge in the context of the U.S. domestic market. Today we are faced with an even greater challenge, to lay the groundwork for an international basis which ensures that the digital revolution will not disadvantage those whom we seek to protect.

As we move toward a world where dissemination of entertainment and information products through on-demand delivery services operating through interactive digital information communications networks is the norm, it may be necessary to harmonize levels of protection under disparate systems of copyright, authors' rights and neighboring rights, and consideration should be given to ways to bridge the gaps among these systems.

If the GII as well as national NIIs are to flourish, then the intellectual property rights that will undergird the economic structure supporting these infrastructures must unequivocally be granted in national legislation fully on the basis of national treatment for all rights and benefits. However, there is some controversy over the scope of the national treatment obligation under the Berne Convention and its application to what some may regard as newly created rights and subject matter. Similar questions arise under other international copyright and neighboring rights conventions as will be later discussed.

U.S. copyright legislation has granted rights that some may regard as new rights -- rental rights in computer programs, sound recordings, and musical works embodied in sound recordings -- exclusively on the basis of national treatment. The United States has instituted a system of royalties on blank digital audio recording media and digital audio recorders. Benefits from these rights have all been granted on the basis of full national treatment. We believe that this is consistent with our obligations under the Berne Convention and other international intellectual property and trade treaties and agreements.

The author or rights holder should be able to realize fully the economic benefits flowing from the free exercise of his or her rights in any country participating in a GII. This is required by Article 5 of the Berne Convention. To do otherwise in either a Berne Protocol or another agreement on copyright protection would be contrary to Article 20 because it would be a derogation of rights existing under Berne and not be an Agreement to "grant to authors more extensive rights than those granted by the Convention, or contain other provisions not contrary to this Convention" as provided for under Article 20.³⁶² To protect new works or to grant new rights in respect of those or presently protected works on the basis of reciprocity, would be contrary to the letter and the spirit of the Convention.

As the GII continues to develop through the international interconnection of NIIs, rules must be formulated to protect the economic rights of providers of entertainment and information products. Such rules should be based on principles of national treatment along the lines of the following:

362 Article 20 states:

The Governments of the countries of the Union reserve the right to enter into special agreements among themselves, in so far as such agreements grant to authors more extensive rights than those granted by the Convention, or contain other provisions not contrary to this Convention. The provisions of existing agreements which satisfy these conditions shall remain applicable.

1. Each country participating in the GII shall accord to nationals of another country participating in the GII no less favorable treatment than it accords to its own nationals with regard to all rights and benefits now, or hereafter, granted under its domestic laws in respect of literary and artistic works or fixations³⁶³ embodying such works.

2. Benefits shall include the same possibility to exploit and enjoy rights in the national territory of a country participating in the GII as the respective country grants to its own nationals.

3. No country participating in the GII shall, as a condition of according national treatment, require rights holders to comply with any formalities in order to acquire rights in respect of literary and artistic works or fixations embodying such works.

One of the most important issues will be what is the nature of a dissemination of a work or a fixation of a work in digital format? Is it a public performance of the work or fixation, an act of reproduction, or a distribution? How do rules concerning the right of importation apply in a digital environment? Just as these questions are critical in the domestic context, they are equally acute in the context of international treaties and harmonization of laws.

Additionally, the issue of multimedia works will take on an important international dimension. If these are regarded at the international level as works in a new, separate category, the issue of their coverage under the existing conventions and the rule of national treatment will be open to debate. If, however, they are subsumed into the existing categories of works, establishing meaningful rules internationally will be simplified.

Further study to determine what other rights may need to be adapted to the emerging digital environment are underway both in domestic and international fora. However some issues merit

³⁶³ This reference to fixations includes the subject matter of neighboring rights related to works and their performance.

identification here, and one of those is the level of protection to be accorded to sound recordings.

Many believe that the time has come to bring protection for performers and producers of sound recordings into line with the protection afforded to the creators of other works protected under the Berne Convention. This includes providing high-level standards for rights and benefits granted on the basis of national treatment. This is necessary for a number of reasons. First, there is no just reason to accord a lower level of protection to one special class of creative artists. Second, the extent of international trade in sound recordings makes it imperative that standards of protection be harmonized at a high level. Third, and perhaps most importantly, the digital communications revolution – the creation of advanced information infrastructures – is erasing the distinctions among different categories of protected works and sound recordings and the uses made of them.

Concerns have been raised over the extent and scope of moral rights in the world of digital communications. Some believe that the ability to modify and restructure existing works make moral rights more important than ever before. Others take the view that moral rights must be rethought in the digital world. We agree with this view. New thought must be given to the scope, extent and waivability of moral rights in digitized information.

The harmonization issues most relevant to the NII arise in the context of WIPO efforts to establish a Possible Protocol to the Berne Convention (Berne Protocol) and a Possible New Instrument for the Protection of Performers and Producers of Phonograms (New Instrument). In the Berne Protocol, the relevant activities concern the protection of computer programs as literary works, protection for databases as compilations of information other than works, the possible elimination of compulsory licensing for broadcasting, and special provisions for the use of materials in digital distribution systems. In the New Instrument, the most relevant issues are the possible establishment of a public performance right for sound recordings (possibly limited to digital broadcasting) and the possibility of a digital distribution or dissemination right for sound recordings.

To attain the needed level of protection internationally, we must find ways to span the differences between the continental droit d'auteur and neighboring rights systems and the Anglo-American copyright systems. An essential element of this effort will be to harmonize levels of protection by establishing standards that can be implemented through either system.

B. TECHNOLOGY

Interoperability and interconnectivity of networks, systems, services and products operating within the NII will enhance its development and success. Standardization of copyright management (standardized header information and format, for instance) as well as technological protection methods (such as encryption) may also be useful. The question of whether any standards should be established, either through government regulation or industry consensus, however, is not within the purview of this Working Group. The issue of what those standards should be, if established, is similarly outside the scope of the area of inquiry of the Working Group.³⁶⁴ If a standard is established, however, protection of intellectual property rights used in that standard is of concern to this Group.

The intellectual property rights implications of the standards-setting process are not new with the development of the NII. The Federal Communications Commission, for instance, has established standards in related areas without interfering with the legitimate rights of intellectual property rights owners.³⁶⁵

364 The IITF Committee on Applications and Technology has responsibility for addressing the issue of standards.

365 Recently, the FCC adopted technical standards that define a patented system as the A.M. radio stereophonic transmitting standard in the United States. See 58 Fed. Reg. 66300 (daily ed. Dec. 20, 1993). The FCC conditioned the selection of the patented system as the standard on the agreement of the patent owner to license its patents to other parties "under fair and reasonable terms." *Id.* at 66301.

The Working Group finds that in the case of standards to be established, by the government or the private sector, the owner of any intellectual property rights involved must be able to decline to have its property used in the standard, if such use would result in the unauthorized exercise of those rights. If the rights holder wishes to have its intellectual property as part of the standard, an agreement to license the necessary rights on a nondiscriminatory basis and on reasonable terms may be required. In the case of de facto standards, arising out of market domination by an intellectual property rights holder, unfair licensing practices can be dealt with through the antitrust laws.

C. EDUCATION

Effective education of the public about intellectual property rights is crucial to the successful development of the NII. Therefore, the principles of intellectual property law must be taught in our schools and libraries. Educational efforts to increase the public's awareness of their own intellectual property rights, as well as those of others, will increase respect for those rights. Clearer guidelines with respect to the exclusive rights of copyright and other intellectual property rights holders, as well as the limitations on those rights, will make compliance with the law easier.

Following its conference on fair use, the Working Group will sponsor a second conference on intellectual property education. The purpose of that conference will be to develop curricula that may be used in schools and libraries. Additional means of education, particularly those that use the NII itself, will also be explored and developed. To increase the productivity of the conference, the number of participants will be limited. However, attendance at the conference will be open to the public. Those wishing to participate in the conference should send a one-page request to Terri A. Southwick, Attorney-Advisor, Office of Legislative and International Affairs, U.S. Patent and Trademark Office, Box 4, Washington, D.C. 20231. Requests must be received by July 25, 1994, and should include a brief description of the interests that would be represented at the intellectual property education conference by the requestor.

The location and date of the conference will be announced in the press, on the IITF Bulletin Board, and in the Federal Register.

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SAM FULLER

February 16, 1993

MEMORANDUM

To: Industrial Advisory Board (IAB) Members
From: Ann Freudendahl
Subject: Information for the first IAB Meeting

Our first meeting will be held at the Dallas Airport in the Hyatt Regency East Tower in the Lunar Room. A block of rooms has been reserved in my name at the East Tower. Please confirm with Margaret Taylor at (615)576-3651 by February 22, 1993 if you will not be attending this meeting.

Enclosed for your information is a draft Technology Transfer Initiative Program Plan which includes an IAB charter. Also attached for use in preparing for this first meeting are some discussion topics and questions.

I look forward to meeting you in Dallas on March 1. If there are any questions I can help with please don't hesitate to call me at (510)422-7299. If I am on travel the office staff will know how to reach me.

Enclosures:
TTIP Program Plan
Discussion Topics/Questions
Agenda

From
A. Freudendahl
L-795
P.O. Box 808
Livermore, CA
94550

University of California



LAWRENCE LIVERMORE
NATIONAL LABORATORY



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28 FEB 93 - SUNDAY

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2/28 - 3/1 IAB MEETING AT DALLAS AIRPORT

(COORDINATOR - ANN FREUDENDAHL, 510-422-7299)

2/28 SUNDAY

FLIGHT

DELTA FROM LOGAN #487 6:40 P.M.
NONSTOP

ARRIVE DALLAS 9:46 P.M.

RESERVATIONS

HYATT REGENCY EAST TOWER (214)453-1234
DFW AIRPORT
CONF. # 469271

3/1

IAB MEETING

IN LUNAR ROOM 8:00-4:30
HYATT REGENCY EAST TOWER

FLIGHT

AMERICAN #154 5:13 P.M.
NONSTOP

ARRIVE LOGAN 9:40 P.M.

3/1

TRANSMISSION REPORT

*IAB
INDUSTRIAL Adv. BRD. Mtg.
Dallas Airport*

508-493-3985

TTI NO. 510 423 8988
DATE AND TIME 01.06.93 06:23 PM
DURATION 01:33
MODE
PAGE 03
RESULT GOOD

THE ALBUQUERQUE MARRIOTT HOTEL

FAX TRANSMITTAL COVER SHEET

TO: name Sue/Sam Fuller date: 2-25-93 time : ^{am}/_{pm}
 company Digital fax # 508/493-3965
 room #

FROM: name Ann Freudendahl fax # 505/888-2982
 company LCB/IAB phone # 505/881-6800
 room # 611 total pages sent 3 (including this page)

SPECIAL INSTRUCTIONS: Latest LCB Letter and agenda for 3/01. You
Should have received this on ~~Monday~~ ^{Monday} 2/22/93. I will be at this
hotel until Friday morning if you need anything. Regards, AF

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Mail Station L-795

Ext. 2-6416

FAX 3-8988

February 22, 1993

MEMORANDUM

To: Industry Advisory Board (IAB) Members
From: *Ann Freudendahl (for)*
The Laboratory Coordinating Board
Subject: Agenda Items

Last week you should have received a preliminary information package from the IAB coordinator, Ann Freudendahl. (This followed a formal letter of invitation to join the IAB from the leaders of the four laboratories.)

The draft Technology Transfer Initiative Program Plan you received should serve to give you an overview of our multi-lab program and how we expect to work with one another. Attached with this letter is a more formal agenda for the March 1 meeting.

The purpose of this first meeting is to lay the groundwork for building an effective relationship between the Laboratories and the IAB. Our objectives for this first meeting are;

1. to gain a common understanding of the technology challenges facing our nation;
2. to begin to identify the roles that the Laboratories should play under Defense Programs' Technology Transfer Initiative, based upon advise from industry;
3. to initially define strategies for maximizing the impact the Laboratories can have on U.S. economic and technological competitiveness; and
4. to allow the IAB to organize itself and set a calendar for the next year.

We look forward to meeting you in Dallas on March 1.

Technology Transfer Directors

• Kay Adams - LANL, (505) 665-9090 Phone, (505) 665-3164 Fax
• Gib Macintosh - LLNL, (510) 423-1341 Phone, (510) 423-8988 Fax

• Dan Arvins - SNL, (505) 271-7813 Phone, (505) 271-785
• Warren Siemens - MMS, (615) 574-1409 Phone, (615) 576-9465 F

**AGENDA
DEFENSE PROGRAMS LABORATORIES
INDUSTRY ADVISORY BOARD (IAB)
MEETING**

Date: March 1, 1993

Time: 8:00am to 4:30pm

Location: Hyatt Regency, East Tower, Lunar Room - DFW Airport

Opening Remarks: Kay Adams, (LANL), LCB Chairperson (15 minutes)

Self Introductions:

Issues to discuss: Open discussion with industry focus
Paul Shoemaker, Facilitator

* **Question:** Within the next five years, what technology challenges must be met by your industry in order to retain or regain the U.S. competitive lead?

* **Question:** In a broader sense, there are many discussions about critical, "National Industrial Challenges". Can we identify those challenges and attempt to define which are most critical/important?

* **Question:** In looking at the nation's manufacturing infrastructure how do we best support and/or assist the second and third tier suppliers?

(Note: In this discussion we expect to identify critical technologies and National Industrial Challenges and begin to set R & D investment strategies.)

Summary Comments: IAB members and Laboratory Leaders

Organizing the IAB:

- Selection of a chair
- Identifying LCB action items
- Setting the calendar for 1993

Invited Comments: By the IAB Chair

Adjournment

TECHNOLOGY TRANSFER INITIATIVES PROGRAM

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RECEIVED

FEB 23 1993

SAM FULLER

February 16, 1993

MEMORANDUM

To: Industrial Advisory Board (IAB) Members

From: Ann Freudendahl

Subject: Information for the first IAB Meeting

(214)453-1234

Our first meeting will be held at the Dallas Airport in the Hyatt Regency East Tower in the Lunar Room. A block of rooms has been reserved in my name at the East Tower. Please confirm with Margaret Taylor at (615)576-3651 by February 22, 1993 if you will not be attending this meeting.

Enclosed for your information is a draft Technology Transfer Initiative Program Plan which includes an IAB charter. Also attached for use in preparing for this first meeting are some discussion topics and questions.

I look forward to meeting you in Dallas on March 1. If there are any questions I can help with please don't hesitate to call me at (510)422-7299. If I am on travel the office staff will know how to reach me.

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469271

From
A. Freudendahl
L-795
P.O. Box 808
Livermore, CA
94550

University of California



LAWRENCE LIVERMORE
NATIONAL LABORATORY

TECHNOLOGY TRANSFER INITIATIVES PROGRAM

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Livermore, CA
94550

University of California



LAWRENCE LIVERMORE
NATIONAL LABORATORY

Discussion Topics

- Critical Technologies
- National Industrial Challenges
- R & D Investment Strategies
- Second & Third tier suppliers

Questions

- 1) Within the next five years what (four or five) technology needs does your industry have to meet in order to maintain/regain the U.S. Competitive edge?
- 2) What "National Industrial" challenges are most critical/important?

DRAFT
1.0 DEFENSE PROGRAMS'
TECHNOLOGY TRANSFER INITIATIVE PROGRAM PLAN

1.1 Introduction and Background

The U.S. Department of Energy, Defense Programs (DOE/DP) technology transfer effort under the Technology Transfer Initiative (TTI) is focused on applying the technological capabilities of the DP complex for the benefit of U.S. industry. The program places major emphasis on both "market pull" through industry cost sharing and benefits to DP. The goals of the program are to 1) enable U.S. industry to access the technical capabilities of the DP laboratories; 2) enhance the national security by helping to maintain a strong reliable U.S. industrial base; and, 3) sustain a vital technology base in the DOE weapons laboratories that can rapidly respond to national security needs. The TTI is intended to stimulate new partnerships between DOE's contractor operated laboratories and industry to advance U.S. technological and economic competitiveness in support of our national security.

1.2 Strategic Plan

1.2.1 Vision

The vision for the Defense Programs Technology Transfer Initiative is to establish new cooperative relationships between the DP laboratories and industry and academia with the goal of enhancing United States competitiveness through a vigorous technology transfer program. Concurrently, the DOE will sustain the nuclear competence within its laboratories, while maintaining a secure and more agile, and efficient weapons' complex.

1.2.2 Mission

The mission of the TTI is to collaborate with the private sector to enable commercialization and utilization of technologies developed over the years within the weapons' complex. The dual objectives are to increase U.S. competitiveness in the global economy while retaining the ability to maintain safe, secure, reliable and survivable nuclear weapons.

1.2.3 Strategic Objectives

Objective: Structure and implement collaborative programs that result in improved economic competitiveness for U.S. Industry.

Strategies:

1. Assess the capabilities of the DP complex and begin to match those capabilities with the needs of the private sector. Then establish an Industrial Advisory Board consisting of leaders from U.S. Industry and academia to provide advice to the DP Laboratories on the ever-changing needs of the private sector. Ensure that mechanisms are established that will serve the needs of small businesses.
2. Design technology prioritization and project selection processes that meet the needs and requirements of both the DP Laboratories and industry. Develop a system of "metrics" to assess the effectiveness of the established processes and determine the continuing relevance of programmatic activities
3. Identify and integrate "Critical Technologies" into the prioritization process and on a best efforts basis allocate funding to projects and initiatives that will have the maximum possible impact upon the economic security of the nation and enhance the nation's ability to compete in a global economy.

Objective: Structure and implement collaborative programs that result in the enhancement of DP base technologies while sustaining the ability to respond to changing defense needs.

Strategies:

1. Identify present and future technological needs that are consistent with the technological competencies required of the 21st century weapons complex. Develop and implement collaborative efforts with U.S. Industry that will result in the development of requisite capabilities and facilities.
2. Articulate and select cooperative projects and programs that are consistent with and complimentary to the TTI while ensuring that the efforts result in national security enhancements for defense as well as economic competitiveness.

Objective: Effectively manage the TTI in conformance with the mission and policy guidance of DOE.

Strategies:

1. Establish a management structure to optimize teaming of the DP weapon's laboratories with the private sector. Ensure that the management structure provides effective utilization of resources through program coordination, program review and evaluation, establishment of performance metrics, and oversight and accountability of the TTI.

2. Establish an effective means of communicating technology transfer objectives and results to the weapon's complex and the private sector. Create mechanism to assure that coordination within DOE, the DP complex, and other agencies achieves the intended results.. Advocate policy and statutory changes to improve the process and meet the program objectives.

1.3 Organizational Roles and Responsibilities

Figure 1 is an organizational chart showing the Technology Transfer Initiative management structure. The charter for each of the groups listed in the management structure is given below.

1.3.1 The Department of Energy

The Defense Programs' technology transfer programs serve to promote the transfer of unclassified dual-use (defense and commercially valuable) technology to American industry through cost-shared, Cooperative Research & Development Agreements (CRADAs). The objectives of the program are to help U.S. Industry become more competitive in international markets, to maintain the technology base resident within the Defense Programs' (DP) laboratories and its production complex, and to assure the availability of reliable commercial suppliers to meet DP's future high-technology needs.

SCOPE OF ACTIVITIES AND RESPONSIBILITIES

- Provide overall TTI program oversight to include final approval and policy authority for TTI activities;
- Participate in long-term strategic planning and program direction, including program development, new initiatives, etc.;
- Support adequate funding and manage the allocation of funds for all TTI related activities;
- Interface between TTI and other government agencies (e.g., DOD, DOC, NIST, NASA, etc.) and DOE program offices;
- Interface between TTI and industry to identify any issues/concerns which industry may have with the process and help to resolve conflicts and misunderstanding;
- Manage implementation of the TTI program through the delegated tracking and monitoring of all ongoing TTI projects through, periodic reports and annual reviews of funded projects and programs.

The DOE field offices (DOE/AL, DOE/SF, and DOE/OR) are responsible for financial oversight of the TTI program in their areas of authority. In addition, the field offices will participate with DP representatives and the Laboratory Coordinating Board members in program development, strategic planning, and program management. Joint Work Statement (JWS) and Cooperative Research and Development Agreement (CRADA) review and approval for TTI projects are a primary technology transfer responsibility of the field offices.

1.3.2. LABORATORY COORDINATING BOARD

The Laboratory Coordinating Board (LCB) is a senior-management group consisting of the Office of Research and Technology Applications (ORTA) Directors from each of the DP laboratories and the Y-12 Plant. The LCB was established to coordinate technology transfer efforts among the DP weapons laboratories to ensure consistent practices while implementing effective technology transfer programs and to advise the DP Technology Transfer Division on the management and implementation of DP's technology transfer activities.

A primary responsibility of the LCB is to work as a team with the DP Technology Transfer Division in managing and implementing technology transfer activities in the weapons complex that relate to the TTI. Such efforts include the establishment of Technology Area Coordinating Teams (TACTs) from the four laboratories, and the overall management of the technology prioritization process with advise from the Industry Advisory Board (IAB). Based upon TACT review and ranking of proposals, the LCB will recommend the selection by DP of those projects and programs which represent the highest degree of compatibility with respective laboratories' capabilities and the greatest potential for contributing to U.S. economic competitiveness.

SCOPE OF ACTIVITIES AND DUTIES

- Coordinate and oversee the TACTs, including, but not limited to, provision of resources, resolution of conflicts between the TACTs, facilitation of inter-TACT collaboration and coordination to minimize duplicative efforts. The LCB will provide for ongoing training to ensure that TACTs understand established DP technology transfer program priorities, policies and project criteria.
- Implement market-driven technology transfer programs in the DP laboratories by seeking industry input to obtain and maintain a realistic understanding of the research, development, and demonstration needs of U.S. Industry.
- Recommend to DP overall program priorities and funding allocations between TACTs based on the technical and commercial merits of proposals that meet established program criteria.

- Develop and communicate to DP new ideas for improved management of the DP technology transfer program.
- Review and provide comments on proposed changes in DOE technology transfer policies and proposed new major initiatives.
- Select and support an Industry Advisory Board that will provide advice and recommendations on DP facility technology transfer activities with the goal of ensuring that such activities are responsive to the needs of the DP complex and to the competitiveness needs of U.S. Industry.
- Work with DP to identify, establish and implement a program that is most likely to achieve the best long-term results by integrating the strategic technical plans of the TACTs and industry's critical technology needs into an overall strategic program plan.
- Pursue and investigate opportunities for technology initiatives that will support the long-term technology development needs of both DP and the private sector. Recommend block funding for such initiatives as appropriate.
- Identify and communicate "best practices" to each other and DP for implementing technology transfer at the laboratory level.
- Create opportunities for production facilities to become involved in laboratory based technology transfer projects.
- Supply critical management information to DP on a routine basis, as established by DP.
- Respond to ad hoc requests from DP for information about LCB and TACT activities, and individual laboratory technology transfer efforts.
- Identify opportunities for educational institutions, small businesses, and labor organizations to become more involved in DP technology transfer efforts.
- Recommend funding levels to DP that will ensure that industries identified competitiveness needs are being met, DP facilities are maintained at appropriate levels of capabilities and small businesses are being adequately supported.

THE CHARTER OF THE LCB

Membership: Members of the LCB shall be the ORTA Directors of Lawrence Livermore National Laboratory, Los Alamos National Laboratory, Martin Marietta Energy Systems, and Sandia National Laboratories.

Conflict of Interest: It will be the responsibility of each LCB member to manage his/her activities so as to avoid real or apparent conflicts of interest in accordance with his/her established laboratory procedures.

Chairperson: Each member of the LCB will serve in turn as Chairperson for a period of up to one year in a mutually agreed rotation. The Chairperson will be responsible for coordinating LCB activities, arranging meetings and meeting agendas, and preparing and distributing minutes of meetings.

Meetings: The LCB Chairperson shall select the location and coordinate the agenda for all meetings. Attendance at the meetings shall be limited as the LCB sees fit.

Reports: A reporting mechanism shall be established so that the advice of the LCB is reported formally to the DP Technology Transfer Division within a reasonable time following formal LCB meetings. Management reports will be supplied routinely under a system to be mutually established by DP and the LCB.

Expenses: All expenses, salaries, or compensation associated with the LCB and LCB activities will be the responsibility of the individual LCB members and their respective laboratory.

1.3.3 TECHNOLOGY AREA COORDINATING TEAMS

The Purpose of each of the Technology Area Coordinating Teams (TACTs) is to provide the technical interface from the DP complex to industry in their respective technology area on an inter-laboratory, coordinated basis. The TACTs are organized so as to make programmatic recommendations to the Laboratory Coordinating Board (LCB) on key technical issues involving DP facilities and to recommend for selection by the LCB those projects which represent the highest degree of compatibility with respective laboratories' capabilities and the greatest potential for contribution to national technological and economic security.

The six TACTs consist of senior technical staff members, one from each of the DP laboratories and Martin Marietta Energy Systems, responsible for the following areas:

1. Precision Engineering & Manufacturing;
2. Materials and Processing;
3. Microelectronics & Photonics
4. Computational Architecture and Applications;
5. Energy;
6. Environment; and

7. Other technical areas as the LCB deems necessary to best support the goals of the DP/TTI

SCOPE OF ACTIVITIES AND DUTIES

- Develop a strategic plan and provide a mechanism to scope their technology area and interact with other TACTs to coordinate areas of overlap.
- Provide a capabilities assessment of the DP complex in their technology area.
- Each TACT shall establish one or more groups from outside the laboratories to serve as Industry Advisors to lend technical industry focused aid to the TACTs in developing and coordinating strategic plans for their respective technology areas. Interactions with the Advisory Group(s) will afford the TACT members the opportunity to work with representative cross sections of industry technologists and business leaders to identify, prioritize, and develop recommendations for focused program initiatives.
- Identify clusters of projects for purposes of management and synergism that benefit multi-lab, multi-company projects.
- Provide an interface to the LCB to develop guidelines for proposal preparation review, and selection criteria and develop TACT specific requirements for mechanisms to implement technology driven collaborative initiatives.
- Support their individual laboratory technology transfer effort by performing outreach and strategic marketing efforts for their respective technology areas.
- Provide quarterly technical reviews and the monitoring of existing technology transfer projects being conducted at the DP laboratories in their respective technical areas.

THE CHARTER OF THE TACTS

Membership: Members of the TACTs shall be limited to one senior technical representative for each of the six technology areas from Lawrence Livermore National Laboratory, Los Alamos National Laboratory, Martin Marietta Energy Systems, and Sandia National Laboratories.

Conflict of Interest: It will be the responsibility of each TACT member to manage his/her activities so as to avoid real or apparent conflicts of interest in accordance with his/her established laboratory procedures. No TACT members

will review proposals from their respective laboratories during the formal "recommendation for funding phase" of any call for proposals unless one or more other laboratories are co-authors of the proposal.

Chairperson: Each TACT will select by member vote a chairperson to serve for a period of up to one year in a mutually agreed rotation. The Chairperson will be responsible for developing, with member recommendations an annual agenda; the coordination of TACT activities; arranging for meetings and meeting agendas; and the preparation and transmittal of minutes of meetings to the members of the TACT and the chairperson of the LCB.

Meetings: The TACT Chairperson shall select the location and coordinate the agenda for such meetings. Attendance at the meeting shall be at the Invitation of the TACT.

Reports: A reporting mechanism shall be established so that the recommendations of the TACTs are reported formally to the LCB, within a reasonable time, following formal TACT meetings and/or on request from the LCB for specific issues.

Expenses: All expenses, salaries, or compensations associated with the TACTs and their activities will be the responsibility of the respective Laboratory ORTA.

1.3.4. THE LCB INDUSTRY ADVISORY BOARD

To ensure that the technology transfer programs of the Defense Programs (DP) facilities are market driven and sensitive to the technical and commercial needs, priorities, and concerns of industry, the Laboratory Coordinating Board (LCB) has established an Industrial Advisory Board (IAB) to advise the LCB on the best ways to work with industry to help improve U.S. industrial competitiveness.

The purpose of the IAB is to provide advice and recommendations to the LCB on DP facility technology transfer activities with the goal of ensuring that such activities are responsive to the commercial needs of the U.S. Private Sector and beneficial to the economic security of the nation.

SCOPE OF ACTIVITIES AND DUTIES

- Recommend, periodically update, and prioritize specific market or technology areas which should be emphasized by the DP technology transfer programs.
- Assist the LCB in determining the most appropriate role for DP facilities in the industrial technology development and commercialization process by helping to match DP facility capabilities with industry needs and requirements.

- Help to identify unique research, development, and demonstration capabilities residing in the DP complex that might be exploited for commercial application.
- Recommend improved mechanisms and methods for industry-laboratory collaborative activity.
- Broaden and improve the quality of industry participation in DP facility technology transfer efforts by identifying improved outreach mechanisms and other methods for interfacing with the private sector.
- Advise the LCB on initiatives and mechanisms that will facilitate closer relationships with small, minority owned or disadvantaged businesses.

THE CHARTER OF THE IAB

Membership: The Industry Advisory Board (IAB) shall consist of no more than twelve members to be nominated by LCB members and appointed by the unanimous consent of the LCB. Members of the Board shall not serve for more than a single term of three years. Terms shall be staggered, to the extent practicable, so that approximately one-third of the membership is replaced annually.

Board members will be selected so as to ensure that a broad spectrum of industry and academia will be represented. Industry members shall be predominant but a balanced perspective must be maintained. Recognized technology and industry leaders with knowledge of the entire technology development life cycle and possessing proven technology commercialization skills are desired. Concurrent or successive appointments of individuals from the same institution or firm will be avoided.

The Directors for the four DP Laboratories shall serve as ex-officio members of the IAB.

Chairperson and Executive Secretary: The IAB will select a chairperson from among its members on an annual basis. The Chairperson will be responsible for developing an annual agenda and coordinating IAB activities with the LCB Chairperson. The LCB will provide an Executive Secretary to support the IAB as appropriate. The cost of such support will be borne equally by the four laboratories through their ORTAs. The LCB provided support will be responsible for arranging meetings and coordinating meeting agendas, preparing minutes of meetings, and identifying IAB and LCB members for special projects.

Conflict of Interest: It will be the responsibility of the LCB to provide members with adequate information concerning conflict of interest issues and provide

guidance and direction so as to manage IAB activities and avoid real or apparent conflicts of interest.

Meetings: The IAB shall meet semi-annually at the call of the Chairperson. The LCB provided staff person shall announce the location, coordinate the planning, and establish the agenda for such meetings in consultation with the LCB.

Reports: A reporting mechanism shall be established so that the advice and recommendations of the IAB are formally transmitted to the LCB and the Laboratory Directors, within a reasonable time agreed upon by the LCB, following IAB meetings.

Remuneration and Expenses: No salary or compensation shall be paid to IAB members. IAB members shall be reimbursed only for reasonable travel and subsistence expenses incurred while attending IAB meetings at LCB expense. Such reimbursement shall be in accordance with official guidelines as established by the supporting laboratory of the LCB Chairperson. All other expenses and staff assistance associated with the IAB will also be the responsibility of the LCB.

1.3.5 TACT INDUSTRY ADVISORY GROUPS

To ensure that a TACT has clear understandings of the specific needs of industry that could be met through cooperative RD&D projects with one or more of the DP laboratories, the TACT shall establish one or more Industry Advisory Groups (IAG) to advise them on the most appropriate projects or technology areas that would help to improve U.S. industrial competitiveness.

The purpose of the IAG(s) is to provide advice on and expose the TACT members to areas of technology development that can be effectively served through cooperative RD&D efforts between the DP Laboratories and specific companies and/or industry groups.

(The TACTs are responsible for formally developing this section of the DP/TTI Program Management Plan.)



LAWRENCE LIVERMORE NATIONAL LABORATORY
UNIVERSITY OF CALIFORNIA
P. O. BOX 808, LIVERMORE, CA 94550

TECHNOLOGY TRANSFER INITIATIVES PROGRAM

FAX No.	(510) 423-8988
FTS	8-510-423-8988
VERIFY	(510) 422-6416
FTS	8-510-422-6416

Date: 2-22-93

Time: _____

To: Sue for
Sam Fuller

From: A. Freudenthal
IAB Coordinator

Fax No.: (508) 493-3965

Phone No.: (508) 493-3710

Phone No.: (510) 422-7299

SUBJECT: IAB Items - Agenda & Purpose -
Copy of Discussion Questions

COMMENTS:

Attached for your info

I have guaranteed you for late arrival
at the Hyatt East, DFW on 2/28/93.

TOTAL PAGES (including cover sheet): 3

ACKNOWLEDGEMENT REQUESTED:

YES: _____ NO: _____

SENT BY: _____

**AGENDA
DEFENSE PROGRAMS LABORATORIES
INDUSTRY ADVISORY BOARD (IAB)
MEETING**

Date: March 1, 1993

Time: 8:00am to 4:30pm

Location: Hyatt Regency, East Tower, Lunar Room - DFW Airport

Opening Remarks: Kay Adams, (LANL), LCB Chairperson (15 minutes)

Self Introductions:

Overview of the DP Laboratories: Four Laboratory Leaders (10 minutes each)

Issues to discuss: Open discussion with industry focus
Paul Shoemaker, Facilitator

* **Question:** Within the next five years, what technology challenges must be met by your industry in order to retain or regain the U.S. competitive lead?

* **Question:** In a broader sense, there are many discussions about critical, "National Industrial Challenges". Can we identify those challenges and attempt to define which are most critical/important?

* **Question:** In looking at the nation's manufacturing infrastructure how do we best support and/or assist the second and third tier suppliers?

(Note: In this discussion we expect to identify critical technologies and National Industrial Challenges and begin to set R & D investment strategies.)

Summary Comments: IAB members and Laboratory Leaders

Organizing the IAB:

- Selection of a chair
- Identifying LCB action items
- Setting the calendar for 1993

Invited Comments: By the IAB Chair

Adjournment

Mail Station L-795

Ext. 2-8416

FAX 3-8988

February 22, 1993

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We look forward to meeting you in Dallas on March 1.

Technology Transfer Directors

• Kay Adams - LANL, (505) 665-9090 Phone, (505) 665-3164 Fax
• Gib Marshall - LLNL, (510) 423-1341 Phone, (510) 423-8988 Fax

• Dan Arvinn - SNL, (505) 271-7813 Phone, (505) 271-785
• Warren Siemans - MIMES, (615) 574-1409 Phone, (615) 576-9465 F



TECHNOLOGY TRANSFER INITIATIVES PROGRAM

FAX No. (510) 423-8988
FTS 8-510-423-8988
VERIFY (510) 422-6416
FTS 8-510-422-6416

Date: 1-13-93

Time: _____

To: Sue
Sam Fuller

From: A. Freudenstein
LCB

Fax No.: (508) 493-3965

Phone No.: (508) 493-3710

Phone No.: (510) 422-7299

SUBJECT: IAB update

COMMENTS:

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TOTAL PAGES (including cover sheet): 4

ACKNOWLEDGEMENT REQUESTED:

YES: _____ NO: _____

SENT BY: _____



Lawrence Livermore National Laboratory • Sandia National Laboratories
 Los Alamos National Laboratory • Martin Marietta Energy Systems

Defense Programs Laboratory Technology Transfer Coordinating Board

January 13, 1993

TO: Distribution
FROM: Ann Freudendahl
SUBJECT: Industrial Advisory Board Update

A few notes to keep you posted:

- **The Board meeting will be held on March 1, 1993.**
- **Location: One of the Dallas Airport hotels (probably the Hyatt). Margaret Taylor from MMES will be working with the hotel and will fax each of us an information sheet when the logistics have been finalized.**
- **Meeting time: 8:00am - 6:00pm**
- **We will have a formal facilitator to ensure that we get the most from our day together. I plan to meet with the facilitator in a few weeks and will be getting an agenda to you after that meeting.**
- **Attached for your information is a copy of the current membership list.**

My telephone number is 510/422-7299 - fax 423-8988.

Technology Transfer Directors

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 • Gib Marguth - LLNL, (510) 423-1341 Phone, (510) 423-8988 Fax

• Dan Arviss - SNL, (505) 271-7813 Phone, (505) 271-7856 Fax
 • Warren Siemens - MMES, (615) 574-1409 Phone, (615) 576-9465 Fax

IAB Mail list

Industrial Advisory Board

Dr. Peter R. Bridenbaugh
Executive Vice President
ALCOA Technical Center
100 Technical Drive
Alcoa Center, PA 15069-0001

Mr. Matthew B. Coffey (Matt)
President
NMTMA
9300 Livingston Road
Fort Washington, MD 20744

Dr. Samuel H. Fuller
Vice President
Digital Equipment Company
146 Main Street
Maynard, MA 01754

Mr. Robert Galvin
Chairman
Motorola, Inc.
1303 East Algonquin Road
Schaumburg, IL 60196

Mr. Milton Klein (Milt)
Consultant
48 Politzer Drive
Menlo Park, CA 94025

Dr. William J. Perry
Chairman
Technology, Strategies & Alliances
3000 San Hill Road
Building 2, Suite 235
Menlo Park, CA 94025

IAB Mail list

**Dr. Karl S. Pister
Chancellor
UC Santa Cruz
296 McHenry
Santa Cruz, CA 95064**

**Mr. William F. Powers
Executive Director
Ford Motor Company
21500 Oakwood Blvd.
Scientific Research Lab
Mail Drop 3153
Dearborn, MI 48121-2053**

**Dr. Jack T. Sanderson
Vice President
MagneTek Corporation
200 Robin Road
Paramus, NJ 07652**

**LCB Membership:
Dr. Kay Adams
Dr. Dan Arvizu
Mr. Gilbert Marguth
Dr. Warren Siemens**

**Ex Officio Membership:
D. Jeffrey Bostock
S. S. Hecker
Al Narath
John H. Nuckolls**

**IAB Coordinator:
Ann Freudendahl**

A

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FACSIMILE COVER SHEET

Please deliver the following pages to:

NAME : Annie Freudendahl
COMPANY : University of California
LOCATION: : _____

PHONE : 510-422-7299
FAX # : 510-423-8988
DATE/TIME : 1/6/93 18:05

Total pages transmitted (including cover letter): 3

FROM: Dr. Samuel Fuller
FAX #: 508-493-3965 (int. 223-3965)
DTN: 508-493-3710 (int. # [dtn] 223-3710)
LOC: 146 Main St., Maynard, MA 01754 (MLO12-2/T7)
CONTACT: Sue Murphy (ext. (508) 493-3722)
Sue Murphy (int. 223-3722)

IF YOU DO NOT RECEIVE ALL THE PAGES, PLEASE CALL THE SENDER.

SAMUEL H. FULLER
SHORT "BIO"

TECHNOLOGY TRANSFER INITIATIVES PROGRAM

Mail Station L-795

Ext. 2-6416

FAX 3-8988

December 28, 1992

MEMORANDUM

To: Sue
From: Annie Freudendahl
Subject: Industrial Advisory Board (IAB) issues

It looks as if March 1 is going to be the best time to have our first meeting with the IAB. I will confirm this date the first week in January. We are considering having the meeting at one of the hotels at the Dallas airport. It would start at 8:30am and adjourn at 5:30pm. I am also considering having a working lunch in order to maximize our time together.

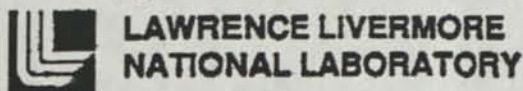
next page
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Annie

University of California



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**LAWRENCE LIVERMORE
NATIONAL LABORATORY**



LAWRENCE LIVERMORE NATIONAL LABORATORY
UNIVERSITY OF CALIFORNIA
P. O. BOX 808, LIVERMORE, CA 94550

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**LAWRENCE LIVERMORE
NATIONAL LABORATORY**

Samuel H. Fuller, Vice President of Research, Digital Equipment Corporation, is responsible for the company's corporate research programs. These include Digital's research groups in Maynard and Cambridge, Massachusetts, Palo Alto, California and Paris, France, joint research with universities, and Digital's participation in MCC (Microelectronics and Computer Technology Corporation).

Dr. Fuller joined Digital in 1978 as Engineering Manager for the VAX Architecture group. After holding a variety of engineering positions, he was appointed Group Manager, Corporate Research in 1981. In 1983, he was appointed Vice President, Research. He has been instrumental in initiating work in local area networks, high performance workstations, applications of expert systems, and new computer architectures.

Prior to coming to Digital in 1978, Dr. Fuller was an Associate Professor of Computer Science and Electrical Engineering at Carnegie-Mellon University. While at CMU, he was involved in the performance evaluation and design of several experimental, multiprocessor computer systems.

Dr. Fuller is a member of the board of directors of MCC and the National Research Initiatives. He also serves as a member of the advisory councils of Cornell University, Stanford University and the University of Michigan and is on the Advisory board of the National Science Resources Center (Smithsonian Institution-National Academy of Sciences).

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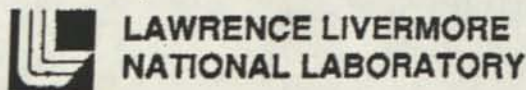
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He is a member of the National Academy of Engineering and a IEEE Fellow.

2/26/93

Sam,

Critical technology and
DOE lab backup. CSPP
related data and
correlations.

Regards,
Jack.

CRITICAL SUCCESS FACTORS

CAPITAL INTENSIVE (CI)										LESS CAPITAL INTENSIVE (LCI)									
CONTROL TECHNOLOGIES	OPTICAL INVESTMENT	CONTROL LINKS	LARGE MARKET SIZE	SIZE OF MFG. FACILITIES	QUALITY	APPLIED R&D	PRIVATE SECTOR COOPERATION	COLLABORATION W/ FOREIGN GOVT & BUSINESS	BASED RESEARCH	STANDARDIZATION & CONFORMANCE	INTEL. PROPERTY PROTECTION	CULTURE BARRIERS	R/D/ Mfg LINKAGES	PEOPLE SKILLED PERSONNEL	REDUCED RISK FOR LARGE MARKET				
PROCESSOR ARCHITECTURE	■	■	■	■	■	○	■	■	■	○	■	○	■	○	■				
NETWORKS COMMUNICATIONS	○	■	■	■	○	○	■	○	■	○	■	○	■	○	■				
HUMAN INTERFACES						○		○	■	○	■			○	■				
VISUALIZATION						○	■	■	■	○	■			○	■				
OPERATING SYSTEMS					■	○	■	■	■	○	■			○	■				
SOFTWARE ENGINEERING					○	○	■	■	■	○	■			○	■				
APPLICATION TECHNOLOGY					■	○	■	■	■	○	■			○	■				
DISPLAYS	○	○	■	○	○	○	■	■	■	○	■			○	■				
HARDCOPY TECHNOLOGY	○	■	○	○	○	○	■	■	■	○	■			○	■				
STORAGE (OPTICAL & MAG.)	○	○	○	○	○	○		■	■	○	■			○	■				
MANUFACTURING TECHNOLOGY	○	○	○	○	○	○	■	■	■	○	■			○	■				
INTEGRATED CIRCUIT FABRICATED EQUIPMENT	○	○	○	○	○	○	■	■	■	○	■			○	■				
MICROELECTRONICS	○	○	○	○	○	○	○	○	○	○	○			○	○				
OPTOELECTRONICS	○	○	○	○	○	○	○	○	○	○	○			○	○				
ELECTRONIC PACKAGING	○	○	○	○	○	○	○	○	○	○	○			○	○				

LESS CAPITAL INTENSIVE (LCI)	■	■	■	○	○	○	○	○	○	○	○	○	○	○	○
CAPITAL INTENSIVE (CI)	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
OVERALL RANKING	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

RELATIVE IMPORTANCE:

○ STRONG

■ MEDIUM

○ WEAK

John DeWanda

From: J. DeMembse

February 1992 CSPP
Technology Report.

To Sam:

For March 1, 1993
meeting.

Regards,
John.

CSPP / Argonne Overlap

Critical Technology	State of Art Manufacturing	Applied R & D	Basic Research
Less Capital-Intensive			
database systems		c	
processor architectures		d	d
networks & communications			
human interface		c	
visualization			
operating systems		a	a
software engineering		a,c	a,c
application technology		a,b,c,e	a,b,c,e
Capital Intensive			
displays			i
hard copy technology			f,i
storage, optical & magnetic			h,i
manufacturing technology		d,h	
integrated circuit fabrication equipment			
microelectronics			g,j,k
optoelectronics			
electronics packaging		h	g,h

Argonne Candidate Collaborations

- a - Parallel Systems
- b - Applied Mathematics/Computational Science
- c - Large Database Systems and Data Management
- d - Automated Reasoning
- e - "Automatic Differentiation"
- f - Magnetic Storage
- g - Ceramic Fabrication, Films, Composites
- h - Nondestructive Evaluation and Instrumentation
- i - Tribology
- j - Superconducting Devices
- k - Molecular Electronic Devices

Not classified

- Advanced Waste Management

CSPP Critical Technologies List

	Critical Success Factors		
	State of the art Manufacturing	Applied R&D	Basic Research
Less Capital Intensive			
Database Systems	o	o/s	o
Processor Architecture	o	o/s,y	o/y
Networks / Communications	x	+/a,c,s,w	x/c
Human Interfaces	o	o/s	o
Visualization	o	o/s	o
Operating Systems	o	o/a,s	o/a
Software Engineering	o	o/a,d,s,b	o
Application Technology	o	o/e,f,g,s,v,m	o/e,u
Capital Intensive			
Displays	+	+/s	x
Hardcopy Technology	+	+/h,s	x
Storage (Optical and Mag)	+	+/h,i,s,q	+/i,q
Manufacturing Technology	+/t,r	+/j,k,p,z,r,t	x/k,u
IC Fabrication	+	+	+
Microelectronics	+	+/e,n,y	+/e,n
Optoelectronics	+	+/q,i	+/e,q,i
Electronic Packaging	+	+	+
Additional areas:			
Environmental	o/r	o/f,r,v,k,t	o/v
Test Site	o	o/s,w	o/w

Relative Importance to CSPP: + strong; x medium; o weak

ORNL Candidate Collaborations:

- a - Distributed Operating Systems and Tools
- b - Parallel algorithms
- c - Gigabit networking
- d - Parallel programming tools
- e - Materials simulation
- f - Groundwater modeling and remediation
- g - Global Climate Modeling
- h - Studies of friction and wear
- i - Surface Enhanced Raman Optical Data Storage (SERODS)
- j - Neural networks for nondestructive evaluation
- k - Chemical sensors for advanced manufacturing processes
- m - A system for high performance concurrent simulation
- n - High temperature superconducting materials
- p - High temperature materials R&D
- q - Optoelectronics/storage
- r - Environmentally-compliant manufacturing
- s - Beta test of advanced computing technologies
- t - Computer integrated manufacturing
- u - Quantitative nondestructive evaluation
- v - In-situ vitrification (ISV) modeling
- w - High-performance distributed computing environment
- y - Applications specific computing architectures
- z - Manufacturing automation

CSPP / LLNL OVERLAP MATRIX

Relative Importance

<u>Critical Technology</u>	state of the art manufacturing	applied R&D	basic research
• LESS CAPITAL INTENSIVE (LCI)			
- database systems	o	x /a	x
- processor architectures	o	• /b	•
- networks and communications	x /c	• /c	x
- human interface	o	•	x
- visualization	o	• /e	x
- operating systems	o /d	• /d	x
- software engineering	o /f	• /f	x
- application software	o	• /g	o /g
• CAPITAL INTENSIVE (CI)			
- displays	• /m	• /j,i	x
- hard copy technology	•	•	x
- storage, optical & magnetic	• /q	• /g,n,p,u,v	•
- manufacturing technology	• /s,cc	• /g,r,ee	x
- integrated circuit fabrication equip.	•	• /m	• /k,l
- microelectronics	• /q	• /g,j,v,w,x,bb	• /z,aa,bb
- optoelectronics	• /d	• /g,u	• /aa
- electronic packaging	•	• /g,t,w,x,y	•
Relative importance: • = strong x = medium o = weak			

LLNL CANDIDATE COLLABORATIONS

- | | |
|---|---|
| <p>a - Hierarchical Data Storage</p> <p>c - Gigabit Networking</p> <p>e - Visualization</p> <p>g - Modeling and Model Development Technology</p> <p>i - Vacuum Microelectronic Flat Panel Display</p> <p>k - Soft X-ray Projection Lithography</p> <p>m - Precision Motion Control for FPD Lithography</p> <p>q - Dimensional and Surface Metrology for VLSI and Mass Storage</p> | <p>b - Evaluation of Processor Architectures</p> <p>d - Operating Systems for Parallel and Distributed Computing</p> <p>f - Software Engineering for Parallel Computing and Re-engineering Existing Systems</p> <p>h - Ultra-low Temp. TFT Fab</p> <p>j - Nanosecond Thermal Doping for ULSI</p> <p>l - Precision Motion for X-ray Lithography</p> <p>n - Fabrication of Hard Disk Substrates</p> <p>p - Magnetic Thin Film Head Slicing</p> <p>r - Laser Material Processing</p> |
|---|---|

**s - Electroplating and
Electropolishing**
u - Multilayers
**w - $\epsilon = 1$ and Other
Dielectrics**
y - Composites
aa - Nanolithography

cc - Certification Science

**ee - Molecular Dynamics Modeling
of Cutting**

t - 3D Multi-chip Modules

v - Alloys and Phase Diagrams
x - Superconductors

z - Nanostructures and Materials
**bb - Characterization of Surfaces
and Interfaces**
**dd - High Bandwidth
Optoelectronics**

16 January 1992

CSPP / LANL OVERLAP

RELATIVE IMPORTANCE
state of art applied basic
manufacturing R & D research

Critical Technology

• LESS CAPITAL INTENSIVE (LCD)

- database systems	o	o	o/a
- processor architectures	o	o	o
- networks & communications	x	•/a,b	x/a,b
- human interface	o	o	o
- visualization	o	o	o
- operating systems	o	o/a,b,c	o/a,b,c
- software engineering	o	o/a,b,c	o/a,b,c
- application technology	o	o/a,b,d,e	o/a,b,d,e

• CAPITAL INTENSIVE (CI)

- displays	•	•	x
- hard copy technology	•	•	x
- storage, optical & magnetic	•	•	•/f,g,i,j
- manufacturing technology	•	•/k,l	x/h,i,j,k
- integrated circuit fabrication equipment	•	•	•/h,i,j
- microelectronics	•	•/d,e,j,k	•/d,e,j,k
- optoelectronics	•	•/d,e,f	•/d,e,f,h
- electronics packaging	•	•/k,l	•/k,l

Relative importance: • = strong x = medium o = weak

LANL CANDIDATE COLLABORATIONS

- | | |
|--|---------------------------------------|
| a - Distributed High Performance Computing | g - Quantum Dots |
| b - Comp. Envir. Parallel Workstations | h - Nanofabrication |
| c - Architectural Simulation Facility | i - Growth, and Processing Thin Films |
| d - Semiconductor Modeling | j - Materials Development |
| e - Quantum Techniques for Large Systems | k - Device Development |
| f - Photonic Devices, Sensors | l - Refrigeration Development |

CSPP / SNL OVERLAP

RELATIVE IMPORTANCE

<u>Critical Technology</u>	RELATIVE IMPORTANCE		
	<i>state of art manufacturing</i>	<i>applied R & D</i>	<i>basic research</i>
<u>LESS CAPITAL INTENSIVE (LCD)</u>			
- database systems	O	X	X/a
- processor architectures	O	●/p	●/p
- networks and communications	X	●/k,n	X/k,n
- human interface	O	●	X
- visualization	O	●/a	X/a
- operating systems	O	●/a	X/a
- software engineering	O	●/a	X/a
- application technology	O	●/a,b,c	O/a,b,c
<u>CAPITAL INTENSIVE (CD)</u>			
- displays	●	●/t	X/t
- hard copy technology	●	●	X
- storage, optical and magnetic	●	●/b,k,m	●/b,k,m
- manufacturing technology	●	●/l,q,r,s	X/l,q,r,s
- IC fabrication equipment	●	●/o	●/o
- microelectronics	●	●/b,j,o,r	●/b,j,o,r
- optoelectronics	●	●/b,j,k	●/b,j,k
- electronics packaging	●/c,d,f,g,i	●/b-i	●/b-i

Relative importance: ● = strong X = medium O = weak

SNL CANDIDATE COLLABORATIONS

a High Performance Computing	k Optoelectronic Materials
b Computer Design of Materials	l Thin Film Dielectrics
c Thermal/Structural Analyses	m Ferroelectric Nonvolatile Memories
d Electromagnetic Modeling	n High Performance Networking
e Ceramic Packaging	o Plasma Processing
f Encapsulation and Conformal Coatings	p Computer Architectures
g Multi-chip Modules	q Manufacturing
h Diamond Films	r Environmentally Conscious Manufacturing
i Soldering	s Quality/Reliability
j Compound Semiconductors	t Plasma Displays

From: RDVAX::DEMEMBER "JACK DE MEMBER, DTN 223-6807; ML01-3/B10 23-Feb-1993 11:40" 23-FEB-1993 11:42:18.80
To: JULIET::JEPSON_CR
CC: DEMEMBER
Subj: Memo from Sandia to us re funding and request that we meet and further commit. Jack

From: DECWRL::"rec@sandia.llnl.gov" "Ray Cline" 23-FEB-1993 00:28:42.22
To: marco_a@crl.dec.com, rdvax::loveman, khw@lanl.gov, rdvax::demember, dona@sandia.pa.dec.com, nrm@lanl.gov
CC: rec@sandia.pa.dec.com
Subj: TACT decision

Folks,

The CA&A TACT met on Thursday, February 18, 1993 to discuss the DEC/LANL/SNL propoosal, among other things. The decision that they arrived at is to sit down with all involved parties (SNL, DEC, and LANL PIs and other DEC representatives (Jack)) and determine the scope of effort that should be addresse, level of effort and level of funding. This is to clarify what the TACT wishes to see for their investment and to clarify goals of the project. Once we have done this the TACT is confident that they will be able to provide the necessary funds for the project to move forward. There is a great deal of interest to accomplish this as soon as possible (within the next month). I suggest that we set up a conference call or e-mail barrage to determine our negotiating stance BEFORE the joint meeting with the TACT. This is good news, but there are still a couple of hurdles left in this race!

Ray
Raymond E. Cline, Jr.
Department Manager, Distributed Computing
Sandia National Laboratories
Box 969, Org 1952
Livermore, CA 94551

Phone: (510) 294-1395
FAX: (510) 294-1225
E-mail: rec@sandia.llnl.gov

% ===== Internet headers and postmarks (see DECWRL::GATEWAY.DOC) =====
% Received: by enet-gw.pa.dec.com; id AA06711; Mon, 22 Feb 93 21:28:05 -0800
% Received: by sandia.llnl.gov (5.65/1.15) id AA04822; Mon, 22 Feb 93 21:02:49 -0800
% Date: Mon, 22 Feb 93 21:02:49 -0800
% From: rec@sandia.llnl.gov (Ray Cline)
% Message-Id: <9302230502.AA04822@sandia.llnl.gov>
% To: marco_a@crl.dec.com, rdvax::loveman, khw@lanl.gov, rdvax::demember, dona@sandia.pa.dec.com, nrm@lanl.gov
% Cc: rec@sandia.pa.dec.com
% Subject: TACT decision

Sam, Digital / LANL } CRADA STATUS 2/26/93
Digital / Sandia }

Jack

From: RDVAX::DEMEMBER "JACK DE MEMBER, DTN 223-6807; ML01-3/B10 23-Feb-1993 11:37" 23-FEB-1993 11:38:23.25
To: JULIET::JEPSON_CR
CC: DEMEMBER
Subj: Memo to Sandia that Marco and I would like to send. Please advise.
Jack

From: MPSPG::MARCO_A "marco annaratone" 23-FEB-1993 11:25:44.05
To: rdvax::demember
CC: mpsg::marco_a
Subj: Letter to Karl-Heinz and Ray, second pass

Karl-Heinz, Ray,

(DRAFT)

I would like to bring you up to date with the situation here. First, the High Performance Technical Computing Group has been formed within Digital. Paul Curtin is the director of the group, Marco is the technical director. The group has clustered together all the various components in the corporation that dealt with HPTC before. This includes MPSPG, which left Corporate Research and Architecture and moved to Computer Systems.

The people in MPSPG are now under Bill Demmer, V.P., Computer Systems. Paul Curtin reports to Bill Demmer. Sam Fuller is therefore no longer responsible for the operation of our group.

Jack and I need and want the support of Paul Curtin and Bill Demmer for the relationships with Los Alamos and Sandia at this point. The players have changed and we want to make sure that the new ones support this kind of relationships as much as the old players did. We met with Paul already and he encouraged us to present the CRADA process and Los Alamos in particular to Bill Demmer's staff on March 2nd. We chose Los Alamos because it came first and the funding has been approved already. We feel that the LANL proposal has a good probability of being approved for submission of the CRADA to our legal department.

We are not going to bring up the Sandia proposal at this meeting since it will be a matter of a few months before we can decide what our commitments can and cannot be regarding cooperative work. We would like to hear from Donna and Ray about how to proceed considering the fact that we will not be able to clarify our ability to commit for a few months in light of the management changes and the reorganization.

Our support to both efforts has not diminished and we will present them as such to our management.

Please feel free to call us to discuss this matter further if you want. We will keep you informed about things proceed. Cheers,

-- Marco and Jack

Feedback - Chung-Tone

----- Forwarded Message

Return-Path: daemon
Received: by mpsg.mps.mlo.dec.com; id AA03326; Tue, 23 Feb 93 00:10:51 -0500
Date: Tue, 23 Feb 93 00:10:49 -0500
Message-Id: <9302230510.AA03326@mpsg.mps.mlo.dec.com>
From: CRL::"rec@sandia.llnl.gov"@rdvax.ENABLED.dec.com (Ray Cline)
To: demember@rdvax.ENABLED.dec.com, marco_a@crl.ENABLED.dec.com
Cc: rec@sandia.pa.dec.com

Subject: JWS for DOE effort

Jack,

I have a message that you want to talk about the Joint Work Statement and what DEC can commit to or not. Let me assure you that the proposal's work statement was passed by Marco and I addressed some concerns that he had at the time. If there were any changes that were not made it was because we felt that they were not significant for the proposal at that time. We need to clarify our commitments before we have the joint meeting with the TACT to determine final funding levels for this proposal. I would be happy to discuss with you and Marco the final form of the DEC commitment and how this may alter our position with the TACT. I think that we are in a good position to put this thing to rest and get on with the work, something that we at Sandia are very anxious to do. We remain committed to helping DEC produce a useful and marketable distributed computing farm. I look forward to your reply.

Ray

Raymond E. Cline, Jr.

Department Manager, Distributed Computing

Sandia National Laboratories

Box 969, Org 1952

Livermore, CA 94551

Phone: (510) 294-1395

FAX: (510) 294-1225

E-mail: rec@sandia.llnl.gov

% ===== Internet headers and postmarks (see DECWRL::GATEWAY.DOC) =====

% Received: by easynet.crl.dec.com; id AA20997; Tue, 23 Feb 93 00:10:41 -0500

% Received: by uucp-gw-2.pa.dec.com; id AA26151; Mon, 22 Feb 93 21:10:35 -0800

% Received: by sandia.llnl.gov (5.65/1.15) id AA04870; Mon, 22 Feb 93 21:08:12 -0800

% Date: Mon, 22 Feb 93 21:08:12 -0800

% From: rec@sandia.llnl.gov (Ray Cline)

% Message-Id: <9302230508.AA04870@sandia.llnl.gov>

% To: rdvax::demember, crl::marco_a

% Cc: rec@sandia.pa.dec.com

% Subject: JWS for DOE effort

- ----- End of Forwarded Message

----- End of Forwarded Message

% ===== Internet headers and postmarks (see DECWRL::GATEWAY.DOC) =====

% Received: by mpsg.mps.mlo.dec.com; id AA05599; Tue, 23 Feb 93 11:27:05 -0500

% Received: by nessi; id AA02022; Tue, 23 Feb 93 11:25:16 -0500

% Message-Id: <9302231625.AA02022@nessi>

% To: rdvax::demember

% Cc: mpsg::marco_a

% Subject: Letter to Karl-Heinz and Ray, second pass

% Date: Tue, 23 Feb 93 11:19:45 -0500

% From: marco_a

% X-Mts: smtp

<< DRAFT >>

February 22, 1993

Dr. Roger Werne
Associate Director for Engineering
Lawrence Livermore National Laboratory
University of California
Livermore, CA 94551

Dear Roger:

Engineers at Digital's Hudson facility have reviewed the information that LLNL had provided in the areas of packaging and X-ray lithography based on the presentations to Sam Fuller and myself in January. In short, feedback from these Engineers indicates no immediate interest in follow up on these technologies with Lawrence Livermore.

For X-ray, the bottom line is that it is too early to consider cooperative work with Lawrence Livermore. The LLNL projection X-ray project is one of 5 listed on the Semiconductor Industry Associations' and on Sematech's long range lithography roadmaps for possible use in 2003. As with the other 4 programs (massively parallel direct-write E-beam, Ion beam, X-ray proximity, and projection E-beam) there are fundamental physics/chemistry questions being tackled now by various groups. We are kept abreast of the work through the Sematech FTAB meetings, and through technical papers at various conferences. We are also kept abreast of the projection X-ray work through GCA/Tropel, which is building the optics for it.

Hudson engineers think the Lawrence Livermore packaging work is interesting, but given the focus on budgets, it is a little far out in terms of our interest level. We don't have any work in these areas now, and it's not clear that we will anytime in the near future. We are following the micro-channel cooling effort with interest through SRC.

Argus proceeds as the most viable area for cooperative work between Digital and Lawrence Livermore with a successful second meeting the week of February 15th between Martin Marietta, TI and Digital.

Sincerely yours,

Jack DeMember

To Sam:

2/26/93 as part

of briefing for

IAB - LLNL response.

Field folks are reviewing.

Jack

<< DRAFT >>

Feedback - change tone ———

To Sam,

2/26/93 in preparation

— March 1 IAB Meeting.

Regards,
Jack DeMoulin

Federal Laboratory Technology Transfer

Federal Laboratory and Industry
Cooperative Research and Development
CRAD

by

Jack DeMember (RDVAX::DEMEMBER/DTN 223-6807)
Technology Planning and Development
Corporate Research

9 March 1993

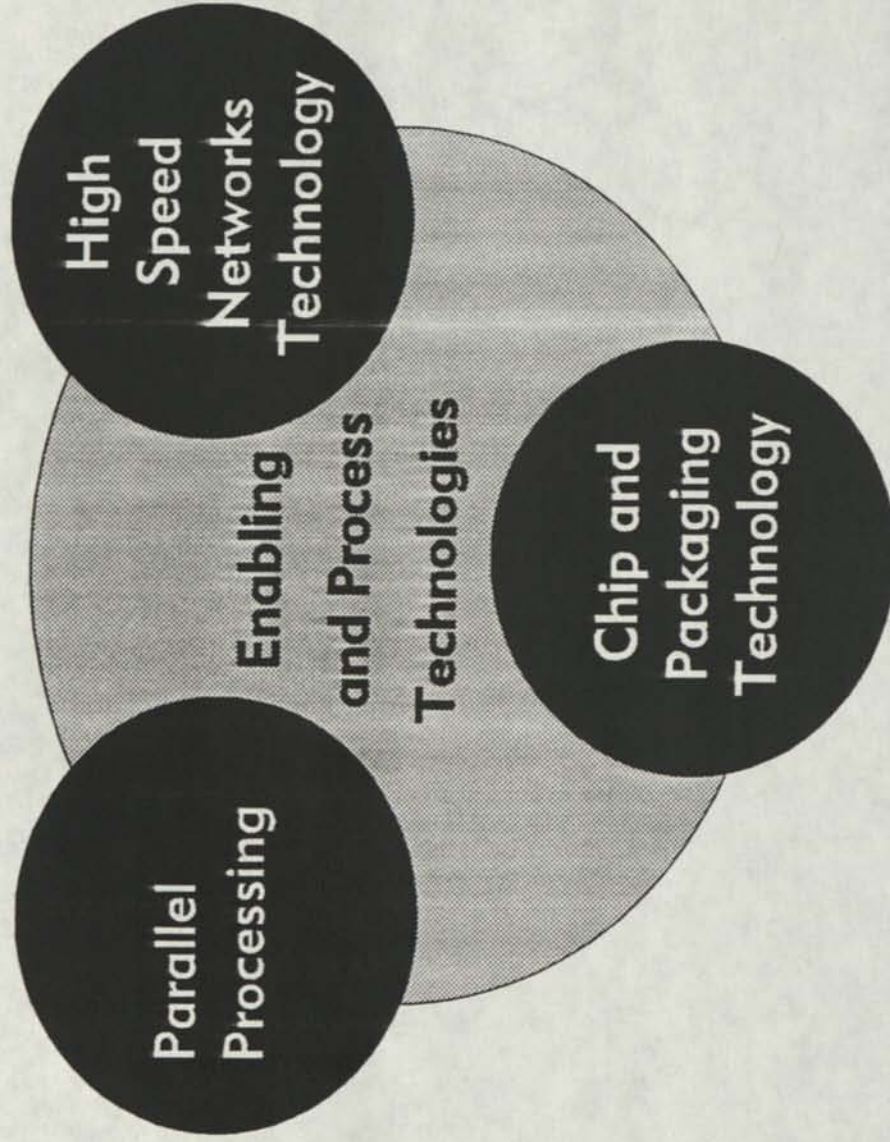
Sam,
2/26/93

This is part of the IAB briefing package. — Also it is a presentation that will present Marco at Demmer's staff on 3/9/96 — It will be an attempt to ask Demmer to go ahead with the LANI proposal/CRADA. Any comment/feedback would be appreciated. Regards,
Jack

Federal Labs & Strategy For Economic Revival and Their Survival?

- They can provide leverage of
 - personnel
 - capital investment
 - technology competencies
- Specifically for the computer industry they have core competencies in three main areas:
 - parallel processing/numerical applications
 - high speed networking
 - chip and packaging technologies

Federal Laboratory Technology Expertise of Interest to the Computer Industry



Incentive For Computer Industry To Be Research Partner of Federal Laboratories?

- They are one of our largest customers
- Leveraging cost of long and short term R&D
- **Impact on products**
 - large to medium size companies:
 - * No direct impact on mainstream products is consistently viable from DOE lab CRAD
 - * CRAD work on enabling technologies will become be the rule
 - small to startup companies or groups:
 - * federal labs can play a key role in mainstream product development
 - * CRAD work on mainstream products can be the rule.

Recent Legislation Encourages Fed Lab Cooperative Work

Several Laws/Bills have recently been signed which:

- Permit DOE Labs to hold trade secrets for up to five years
- Permit the laboratory director's to be the only signatory on CRADA's
- Allocate considerable funding to DOE and DOD for technology partnerships with Industry. Examples:
 - HPCCI/NII
 - Environmental Monitoring and Remediation, EH&S

DOE/Digital CRADAs

LEVERAGING of DOE R&D INVESTMENT FOR DIGITAL

DOE Programs Considered in the Past Two Years

DOE Labs	Subject/time	Total Funding	Total/FY93	DOE/FY93	DOE/total
Sandia*	Solder- PWB/2yr**	\$1M	\$0.5M	\$0.25M	\$0.5M
Sandia*	Reliability/2yr	\$1M	\$0.5M	\$0.25M	\$0.5M
Sandia*	HAST Test/2yr**	\$1M	\$0.5M	\$0.25M	\$0.5M
Los Alamos*	Alpha Wks/3yr	\$4.5M	\$1.5M	\$0.75M	\$2.25M
Sandia	Flat Panels/?	TBD	TBD	TBD	TBD
Los Alamos*	Environmental/3mo**	\$1M	\$0.5M	\$0.5M	\$0.5M
LLNL	Argus Security Sys.	TBD	TBD	TBD	TBD
NCMS	PWB Dev/5yr***	(\$26M)	(\$6M)	(\$4M)	(\$10M)
Sandia	Alpha Wks/3yrs	\$7.5M	\$2.5M	\$1.25M	\$3.75M
Total to Date		\$16.0M			\$8.0M

* DOE funding of these programs has been approved.

** Work has already begun on these programs.

*** Our involvement with this program ended in the summer of 1992 - sale of Greenville.

DOE Project Details

Project Title	Digital Group	National Lab	CRADA Status
Static and Dynamic Stability of Solder Bridges on PWB/2yr	Gary Freedman	Sandia	JWS
Chip on Board (COB) with Sandia's Assembly Test Chip/2yr	Les Fox	Sandia	JWS
High k ferroelectrics for decoupling/2yr	Tim Michalka	Sandia	JWS
Dist. High Perf. Par. Supercomputing on ATM connected farm of α -wrkst.	Marco Annaratone	Los Alamos	JWS, CRADA(draft)
Flat Panel Displays	MCC	Sandia	MOU, JWS
Environmental Remediation(3mo)	Digital/MCC	Los Alamos	Near completion
Argus - System for High-Security Facil.	Security Systems	Lawrence Livermore	Discussions
Workstation Farm development - S/W	Marco Annaratone	Sandia	JWS

Legal Barriers to Industry/Federal Lab CRAD

Potential major legal barriers to the present process for CRADAs are:

1. Freedom of Information Laws
2. Fairness of Opportunity Rules
3. U.S. Preference for Manufacturing Rules

A prediction for the future:

Either these laws/rules will change or the process will migrate to *single technology focused, vertically integrated mini-consortia* which mitigate these factors and permit CRAD without them being a major concern.

From: RDVAX::FULLER "Sam Fuller" 20-FEB-1992 12:38:24.35
To: deluca
CC:
Subj: Print and file in IPPC. Key Document

From: RDVAX::GANNON "Tom Gannon 223-3828" 19-FEB-1992 10:38:00.01
To: FULLER
CC: DELUCA, GANNON
Subj: CUMULATIVE PATENT INCENTIVE AWARD INFORMATION

Sam, Iris,

Sorry!

Tom had asked me to forward this and I didn't!

Callie

From: RDVAX::TORRES "Intellectual Property - 223-1010" 11-FEB-1992
09:47:54.23
To: DELNI::GOLDMAN
CC: GANNON, REED, TORRES
Subj: Answer to your Cum Patent Award question

Sue;

Attached is a copy of the way the new cumulative patent incentive award will look after the decision reached by the IPPC. The decision was to take care of the cumulative awards for issued patents (i.e. Utility Patents) and leave the awards for applications as it currently is, that is at \$2500 level.

I am including the current table as well as the new one for your information.

The new award table will be implemented at the beginning of Q1 Fy93.

Regards; Hector

Inventors with more than 25 applications and/or inventions.

o CURRENT: Awards for additional patents is as follows;

	Design Patents		Utility Patents	
	App	Issued	App	Issued
5th Patent	--	--	--	\$5,000
10th	--	\$2,500	\$2,500	\$10,000
15th	--	--	--	\$15,000
20th	--	\$2,500	\$2,500	\$20,000

hnt
12/17/91

O NEW PATENT INCENTIVE AWARD - IMPLEMENTATION DATE - Q1 FY93

	Design Patents		Utility Patents	
	App	Issued	App	Issued
5th Patent	--	--	---	\$5,000
10th	--	\$2,500	\$2,500	\$10,000
15th	--	--	---	\$15,000
20th	--	\$2,500	\$2,500	\$20,000
25th	--	--	---	---
30th	--	\$2,500	\$2,500	\$20,000
35th	--	--	---	---
40th	--	\$2,500	\$2,500	\$20,000
45th	--	--	---	---
50th	--	\$2,550	\$2,500	\$20,000

hnt
12/11/91

From: RDVAX::GANNON "17-Jul-1989 1306" 17-JUL-1989 13:25
To: WITNES::CLARK,WITNES::MYRICK,@CRASTAFF,WITNES::LESTER,WLDWST::GLENN,GANNON,GANNON
Subj: West Coast Patent Firm Support

TM

I N T E R O F F I C E M E M O

+-----+
| d | i | g | i | t | a | l |
+-----+

TO: RJ CLARK
RON MYRICK

CC: CRA STAFF
JERRY LESTER
MIKE GLENN

DATE: 17 JULY 1989
FROM: TOM GANNON
DEPT: CRA/TP&D
EXT: 223-3828
LOC: MLO1-3/B10
ENET: RDVAX::GANNON

SUBJECT: WEST COAST PATENT FIRM SUPPORT

As our recent CRA Research Director's meeting, several members of Sam's staff indicated that they were most pleased with the services provided by Mike Glenn and an outside patent firm (Flehr, Hohback, Albritton and Test) in preparing patent applications with our research staff members. We want to ensure that the positive working relationship that has been developed with this firm will continue in the future, and we request that the firm of Flehr, Hohback, Albritton and Test be used for all patent applications and related legal work for both the Systems Research Center (SRC) and Western Research Lab (WRL).

We appreciate your assistance in maintaining an excellent working relationship between this outside firm and our research labs in Palo Alto.

Regards,
Tom



Suite 500
1735 New York Ave N.W.
Washington, D.C. 20006
202/628-1700

Kenneth R. Kay
Executive Director
(Preston, Thorgrimson, Ellis
& Holman)

**Officers of CAIT Board
and Executive Committee:**

Dr. Joseph A. Saloom
Chairman
(M/A COM, Inc.)

Dr. Melvin A. Eggers
Vice-Chairman
(Syracuse University)

John A. Young
Vice-Chairman
(Hewlett-Packard)

John G. Boyd
Treasurer
(IBM)

Vico E. Henriques
Secretary
(CBEMA)

Robert C. Kirkwood
Chairman of the Steering
and Planning Committees
(Hewlett-Packard)

From: Bruce Holbein

RECEIVED

OCT 8 1986

SAM FULLER

cc: CRA

f: Admin

THE NEW UNIVERSITY BASIC RESEARCH

TAX CREDIT: A PRIMER

Prepared by

The Coalition for the Advancement of
Industrial Technology

(C.A.I.T.)

1735 New York Avenue, N.W.

Suite 500

Washington, D.C. 20006

September, 1986

THE NEW UNIVERSITY BASIC RESEARCH TAX CREDIT: A PRIMER

Overview

The 1986 Tax Reform Act includes a new tax credit for corporate payments to universities and certain other nonprofit research organizations for the performance of basic research. The new credit is a substantial improvement over the previous incremental R&D credit applicable to internal corporate research and corporate-sponsored university research. It includes several features which should encourage companies to increase their investments in university basic research substantially:

- o The new university credit is not incremental. As long as a company's payments exceed a fixed base related to 1981 through 1983 average research expenditures, the credit will be allowed each year on additional research payments.
- o Companies making multi-year contracts will thus be able to obtain the credit on each year's rather than only the first year's payments.
- o The credit rate is significantly higher than the effective rate of the regular R&D credit; the new credit equals 20 percent of total research payments in excess of the fixed base, whereas the regular R&D credit applies to 20 percent of 65 percent of incremental research payments.
- o The new credit applies not just to corporate grants to universities and other qualified research organizations, but to basic research contracts in which companies receive rights to any resulting technology.

- o The credit applies to companies funding university basic research through intermediary tax-exempt organizations as well as direct funding.

While the qualification and computation rules relating to the new credit are not simple, they can be determined and met without undue difficulty. They should permit taxpayers to qualify for the credit in a broad range of circumstances.

Qualification Requirements for the Credit

1. Written agreement. The research must be performed pursuant to a specific written agreement between the corporate sponsor and the performing institution. This requirement applies even if a virtually unrestricted research grant is contemplated. The written agreement should describe the relationship between the performing institution and the sponsoring corporation in some detail (including ownership and license rights in any resulting technology), and should specifically state the elements required for eligibility of the research, as set forth in paragraphs 2 through 5 below.

2. Research must be funded through monies -- not equipment or services. The bill adds a new requirement that only payments of money by sponsoring corporations will be eligible for the credit. Transfers of research equipment, or corporate research personnel, etc., will not qualify even if in consideration for basic research under a written agreement.

3. The research performed must be "basic" research. The admittedly vague definition of basic research is "any original investigation for the advancement of scientific knowledge not having a specific commercial objective." This is generally based on the National Science Foundation definition used for data-gathering and other purposes. Considerable uncertainty exists as to how broadly this definition can be applied. But clearly research related to a specific product (rather than related to a technology useful in developing one or more products) is not basic research. The term basic research is defined specifically to exclude any research (whether or not basic) conducted outside of the United States, and any research in the social sciences, arts or humanities.

In all cases, it is important for the required written research agreement to specify that the research to be undertaken is limited to basic research under the above definition and that the performing institution not take any position or make any statement to the contrary.

4. Payments must be made to qualified organizations. Under the new legislation payments can be made to four types of institutions and be eligible for the credit:

a. Institutions for Higher Education.

To qualify as an "institution for higher education" an institution must: 1) not be a correspondence

school; 2) admit only students graduating from high school (or the equivalent); 3) be a public or nonprofit organization; and 4) either offer an educational program which awards (or is creditable toward receiving) a bachelor degree or offer occupational training programs. Generally colleges, universities, junior colleges and many occupational training schools will be eligible under this definition.

b. Scientific Research Organizations.

"Scientific research organizations" are charitable organizations (i.e., Section 501(c)(3) organizations) which are not educational institutions but which are organized and operated primarily to conduct scientific research. While such organizations are eligible only with respect to the performance of basic research, the organizations can primarily perform other, non-basic research and still be qualified organizations. Organizations which for Code purposes are private foundations are excluded from qualification under this provision.

c. Tax-Exempt Organizations Organized to Fund Basic Research.

Other tax-exempt organizations (including Section 501(c)(3) charitable organizations which are not private foundations and Section 501(c)(6) industry associations) are qualified organizations if they

are organized and operated primarily to promote scientific research to be performed by institutions for higher education or scientific research organizations (as defined in a. or b. above). Such organizations must expend substantially all their revenues (or substantially all their revenues designated for basic research) on basic research payments on a current basis.

d. Certain Other Charitable Organizations.

A limited category of charitable Section 501(c)(3) organizations organized before July 10, 1981 exclusively to make grants to universities for basic research can qualify even though they accumulate rather than expend currently the contributions made to them. However, such organizations must elect to be treated as private foundations for all Code purposes to qualify under this provision.

5. Computation of Eligible Payments

Two concerns of Treasury and Congress led to limitations on the computation of the 20 percent credit. First, the concern existed that companies should be eligible for the credit only to the extent that their payments for basic research exceed in effect a minimum level of effort which companies are or should be undertaking without any tax incentives. Second, concerns were expressed that companies

should not be able to obtain the credit merely by decreasing their ongoing nonresearch grants and contributions to colleges and universities and increasing their research grants and contracts by the same amount. To deal with these two concerns, the legislation limits the amount of any payment otherwise eligible for the new credit by a "minimum basic research" amount and a "maintenance-of-effort" amount.

Minimum Basic Research Amount. Under the bill the "minimum basic research amount" equals the greater of:

1. A company's average credit-eligible basic research payments under the pre-tax reform rules for tax years beginning in 1981, 1982, and 1983. These payments can be determined from amounts taken into account as university basic research payments (under Code Section 30(e)) on a taxpayer's return for those years.
2. One percent of a corporation's research expenditures for all types of research eligible for the credit in 1981, 1982 and 1983. This amount is simply based on the total taken into account for R&D credit purposes in those years.

A special exception to the above rule is provided for companies not in existence during one or more of the 1981-83 years. Such companies are to compute their minimum basic research amount as an average of any amounts actually incurred in any of those years in which the company was in existence, but in no case can the amount be less than one-half of total current payments to qualified institutions for basic research.

For most corporations not subject to the special exception, the minimum base period amount should not be so large as to prevent substantial increases in a company's funding of basic research from qualifying for the new credit. Companies which have consistently given significant amounts to qualified institutions for basic research in prior years should find that the average 1981-1983 amounts are in most cases relatively small compared to amounts contemplated for 1987. Moreover, for companies not engaged in research relationships during 1981 through 1983, the base period amount of 1 percent of all types of research qualified for the R&D credit should be relatively small where R&D has grown at a reasonable rate since that time.

Maintenance-of-Effort Amount. Under the final bill amounts otherwise eligible for the new basic research credit will be reduced to the extent that a taxpayer is reducing its real level of overall corporate grants and contributions to universities. The amount used as a starting point to determine whether grant and contribution levels have increased or decreased is the average amount of grants and contributions to universities in 1981 through 1983 tax years, excluding any grants or contributions for basic research funding. To be taken into account the grants and payments must be properly treated as charitable contributions under Code Section 170. The average 1981-1983 grant and contribution amount is then increased by the rate of

inflation for subsequent years.* To the extent the amount as so increased exceeds current year Section 170 grants and contributions to universities (again excluding payments for basic research), the eligibility of payments for basic research for the new 20 percent credit is reduced.

In essence, this provision will affect companies only if their overall increase in charitable contributions to universities does not keep pace with the rate of inflation since the 1981-1983 period.

Interaction of Basic Research
Credit and Incremental R&D Credit

Basic research payments to which the new credit applies -- taking into account the qualification rules and any reductions for the minimum basic research amount and the maintenance-of-effort amount -- are not eligible for the regular incremental R&D credit. Nor will such amounts be taken into account in computing a taxpayer's base period in a subsequent year. However, amounts paid for basic research in pre-tax reform years which were taken into account under the incremental R&D credit at that time will remain in the base period for regular incremental credit purposes, even if such amounts are also taken into account as minimum basic research amounts under the new basic research credit.

* The Conference Agreement does not make clear exactly how this inflation adjustment will apply. However, it is anticipated that the IRS will publish a table specifying the amount of the adjustment for 1987 and later years.

Also, all amounts not eligible for the basic research credit are taken into account under the regular incremental R&D credit. Thus, contract research payments to nonqualified institutions, payments to qualified institutions for research other than basic research, and research payments to the extent of the minimum basic research amount and the maintenance-of-effort amount are all eligible for the regular incremental credit in the year the research is performed and will be included in the base period of that credit in subsequent years.

Effective Date

The new credit applies to payments made in taxable years beginning after 1986. As with the incremental R&D credit, the new credit expires after December 31, 1988. Obviously, a major effort will be made before that date to have the basic research credit as well as the incremental credit extended to later years.

Implementing the Credit

If the credit is to have a significant impact, it is extremely important that high technology companies incorporate the credit's benefits in their R&D planning decisions as soon as possible. The potential for extending the credit beyond 1988 will be aided substantially if it can be established that the level of corporate funding of basic

research has increased demonstrably after the enactment of the new credit.

Thus, it is strongly urged that corporations undertake now to assess their current level of spending for university research and determine their minimum basic research amount for 1981 through 1983. Once this amount is determined, companies can calculate the extent to which additional funding of basic research will in fact generate tax benefits under the credit. After these calculations are made, R&D and other senior corporate managers should be made aware of the specific potential for the use of the credit as soon as possible.

If additional research eligible for the credit is contemplated, it is important to make certain that the written agreement between the sponsoring company and the qualified organization expressly state the various elements of qualification discussed above, reflecting the parties' intent that the research qualify for the new credit. Once that is accomplished, companies should be reasonably certain that their payments to qualified institutions for the performance of basic research will qualify for the new 20 percent credit.

5/12/87
ORA Woods
Foster Knight
Tom Engdahl (?)
Jerry Lester

ENGINEERING GROUPS

AND

EXPORT CONTROLS

OBJECTIVES

- DISCUSS IMPORTANCE OF U.S. EXPORT CONTROLS TO DIGITAL AND ENGINEERING

- INITIATE PROCESS FOR DETERMINING ENGINEERING GROUPS' NEED FOR EXPORT PROCEDURE

- DISCUSS SPECIFIC EXPORT ISSUES

WHY SHOULD ENGINEERING FOCUS ON EXPORT CONTROLS?

- DIGITAL IS TRUE MULTINATIONAL CORPORATION. IN FY86, MORE THAN 40% OF SALES WERE NON-U.S. RANKED BY FORTUNE AS 13TH LARGEST U.S. EXPORTER
- THE INTERNATIONAL DELIVERY OF DIGITAL'S PRODUCTS, SERVICES, AND TECHNOLOGY IS SUBJECT TO COMPREHENSIVE AND RIGOROUS U.S. EXPORT CONTROLS
- 1984 EXPERIENCE
- INCREASING U.S. GOVERNMENT ATTENTION TO TRANSFERS OF LEADING EDGE TECHNOLOGY WARRANTS CLARIFICATION AND REFINEMENT OF EXPORT CONTROLS IN THE ENGINEERING WORLD

EXPORT CONTROL REQUIREMENTS FOR ENGINEERING

- AS REQUIRED BY DIGITAL'S DISTRIBUTION LICENSE INTERNAL CONTROL PROGRAMS, ENGINEERING SITES WHEREVER LOCATED MUST COMPLY WITH ALL APPLICABLE CONTROLS ON EXPORTS OF PRODUCTS AND TECHNICAL DATA
- ENGINEERING ACTIVITIES MUST BE REVIEWED TO DETERMINE WHICH ACTIVITIES REPRESENT EXPORTS OF PRODUCTS AND TECHNICAL DATA AND TO VALIDATE EXISTING METHODS USED TO ACHIEVE COMPLIANCE OR ADOPT NEW METHODS
- KEY STEP IN PROCESS WILL BE DESIGNATION OF APPROPRIATELY-POSITIONED ENGINEERING PERSONNEL TO PARTICIPATE WITH CORPORATE LAW AND CORPORATE EXPORT IN THIS REVIEW
- END RESULT WILL BE PROMULGATION OF PROCEDURE TO REGULARIZE AND FACILITATE ENGINEERING'S COMPLIANCE MEASURES AND ADDRESS GENERIC EXPORT QUESTIONS

ITEMS SUBJECT TO U.S. EXPORT CONTROLS

- © COMMODITIES - FINISHED SYSTEMS, COMPONENTS, ASSEMBLIES,
MODULES, BOARDS AND PARTS, INCLUDING PROTOTYPES

- © TECHNICAL DATA -- INFORMATION OF ANY KIND THAT CAN BE USED IN
THE DESIGN, PRODUCTION, ETC. OF PRODUCTS
 - TANGIBLE AND INTANGIBLE

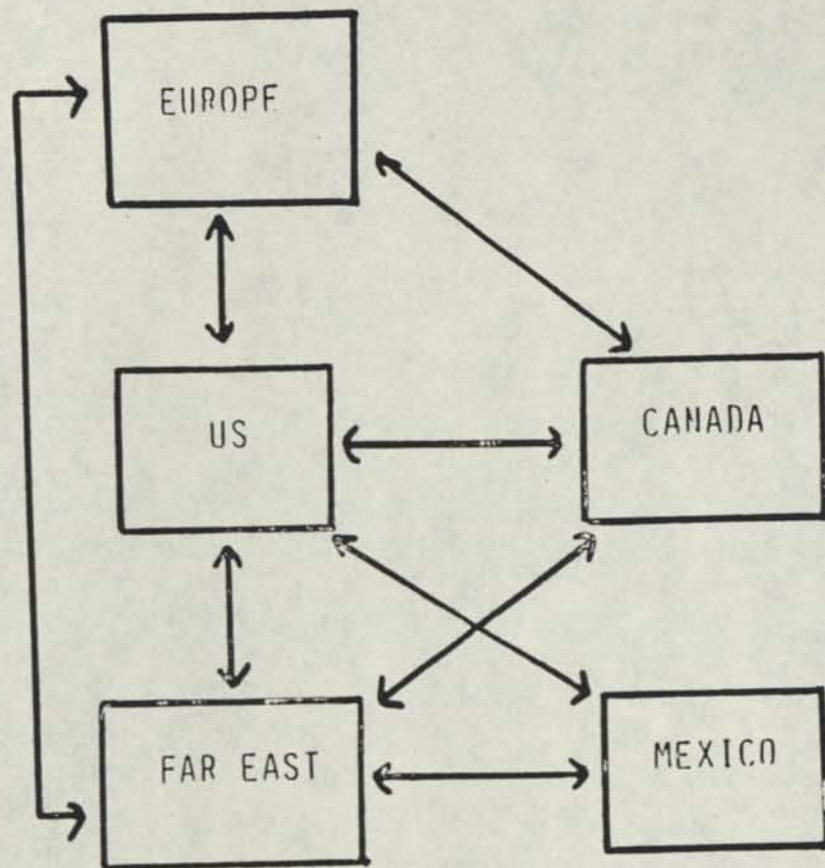
 - EXS.--BLUEPRINTS, SPECIFICATIONS, TECHNICAL
MANUALS, MAGTAPES, DISKETTES, CASSETTES,
SOFTWARE (INCLUDING DESIGN TOOLS)

- © ENCRYPTION -- SUBJECT TO MORE RESTRICTIVE, STATE DEPARTMENT
CONTROLS

TRANSACTIONS SUBJECT TO U.S. EXPORT CONTROLS

- ④ EXPORTS FROM THE U.S., DIRECT OR INDIRECT
- ④ CERTAIN TRANSFERS TAKING PLACE OUTSIDE THE U.S.

- ④ DEC TO CUSTOMERS, VENDORS, CONSULTANTS, ETC.
- ④ INTRA-DEC



FOR A U.S. COMPANY LIKE DIGITAL, U.S. EXPORT LICENSES ARE REQUIRED EVEN FOR INTERNATIONAL SHIPMENTS OF PRODUCTS MADE IN DIGITAL'S EUROPEAN, FAR EAST, AND OTHER G/A MANUFACTURING/ENGINEERING FACILITIES

LICENSE AUTHORITY FOR EXPORT TRANSACTIONS
INVOLVING DIGITAL PRODUCTS

⊙ GENERAL LICENSES -- NO APPLICATION REQUIRED

EXS. - GLV - LESS THAN \$1,000

GTE - TEMPORARY EXPORTS

GCOM - LOWER-LEVEL PRODUCT TO NATO COUNTRIES

⊙ VALIDATED LICENSES -- APPLICATIONS AND APPROVAL REQUIRED

INDIVIDUAL - SALES TO SOVIET BLOC, PRC, ETC.

SPECIAL - DISTRIBUTION LICENSE

⊙ STATE DEPARTMENT LICENSES FOR ENCRYPTION PRODUCTS AND TECH
DATA

DIGITAL'S DISTRIBUTION LICENSE

○ SUPPORTED 83% OF INTERNATIONAL SALES IN FY86

● AVOIDS DELAYS IN INTERNAL AND EXTERNAL PRODUCT MOVEMENT

○ PERMITS LONG-TERM BUSINESS PLANNING PREDICTABILITY

PRICE -- AN INTERNAL CONTROL PROGRAM "DESIGNED TO ENSURE
COMPLIANCE WITH ALL CONDITIONS OF THE DISTRIBUTION
LICENSE AND EXPORT ADMINISTRATION REGULATIONS"

[PRODUCT AND TECHNICAL DATA TRANSFERS]

LICENSE AUTHORITY FOR TRANSACTIONS INVOLVING
TRANSFERS OF DIGITAL'S PROPRIETARY TECHNICAL DATA

TRANSFERS TO AND WITHIN FREE WORLD, NOT INCLUDING TRANSFERS
WHOLLY WITHIN THE UNITED STATES - GENERAL LICENSE GTDR

- NO APPLICATION REQUIRED
- CONDITION - RECIPIENT MUST PROVIDE WRITTEN STATEMENT
REFLECTING NO INTENTION TO TRANSFER THE
TECHNICAL DATA TO A RESTRICTED COUNTRY.

TRANSFERS TO RESTRICTED COUNTRIES - INDIVIDUAL VALIDATED LICENSE

- APPLICATION REQUIRED

SPECIFIC EXPORT ISSUES

- TRANSFERS OF SENSITIVE DIGITAL TECHNOLOGY TO NON-U.S. DEC LOCATIONS/EMPLOYEES
 - CORPORATE EXPORT TECHNOLOGY REVIEW
 - SATISFACTION OF GTDR ASSURANCE REQUIREMENT
 - TEST SUFFICIENCY OF PROPRIETARY CONTROLS

- TRANSFERS OF SENSITIVE DIGITAL TECHNOLOGY TO UNIVERSITIES
 - IF UNIVERSITY IS NOT FREE TO MAKE RESEARCH RESULTS PUBLICLY AVAILABLE WITHOUT RESTRICTION, APPLICABLE LICENSE AUTHORITY IS GENERAL LICENSE GTDR WHEN TRANSFER REPRESENTS AN EXPORT

 - NEED FOR UNDERSTANDING ABOUT CONDITIONS UNDER WHICH DIGITAL TRANSFERS SENSITIVE TECHNOLOGY TO UNIVERSITIES

- DOCUMENTATION PROCESS
 - LINKING ENGINEERING GROUPS TO DOCUMENTATION CENTERS

- VENDOR/CONSULTANT RELATIONSHIPS
 - IDENTIFY RELATIONSHIPS THAT MIGHT REQUIRE EXPORT SCREENING

- IDENTIFY PRODUCT SHIPMENTS BY ENGINEERING SITES THAT REQUIRE DISTRIBUTION LICENSE OR OTHER EXPORT LICENSE AUTHORITY AND FORMALIZE PROCEDURE FOR PROPERLY INVOKING THAT AUTHORITY
 - PROTOTYPES, TEST EQUIPMENT, MANUFACTURING EQUIPMENT

From: RDVAX::FULLER "SAM FULLER, ML12-2" 28-APR-1987 13:51
To: DELUCA
Subj: print and file in Legal

From: RDVAX::GANNON 27-APR-1987 15:04
To: FULLER, TIMURA, TRAVERS, GANNON
Subj: Legal Support Topics

At our last staff meeting on April 17, we agreed to provide a list of topics that Jerry is working for us. The following summarizes items that are currently "in process" and additional topics that will require Jerry's support over the next 30-60 days:

Current Tasks:

1. MCC/DEC Non-Disclosure - Software Technology Program
2. MCC/DEC Joint Research Project Agreement - CYC Project
3. VPC/DEC Consulting Contract - Evaluation of Speech Processing Technology

Future Tasks:

1. Preparations for MCC BOD (May)
2. Restructuring MCC ACA Research Agreement (May - June)
3. Restructuring MCC ACA Master License and Technology Assistance Agreements (May -August)

Overall, we have been most pleased with the timely service provided by Jerry Lester and the Legal Department over the past year. From my point of view, Jerry has responded well to the top priorities and hard deadlines that we have encountered for MCC, BP, VPC, etc.....

Since there appears to be some dis-satisfaction with the level of service provided by Legal to other groups within CRA, and it appears that TP&D and ERP have been getting Jerry's priority, I suggest that you (Sam) clarify your priorities with Jerry AND the CRA Managers, so that we all understand/support the same priorities. Since Jack and I can keep Jerry busy full-time working our legal issues exclusively, I also suggest that you make your proactive support for additional help for Jerry known to his management.

Regards,
Tom

file

I N T E R O F F I C E M E M O R A N D U M
E M A S A 2 A L L - I N - 1 S Y S T E M

Date: 13-Apr-1988 03:57pm EDT
From: KOTEFF
26215@DECMAIL@CORMTS@CORE
Dept: ENGR PRODUCT PLANNING
Tel No: 223-3123

TO: See Distribution List

Subject: MINUTES OF 3/31 - 4/1 JFS STAFF MEETING

SUBJECT: MINUTES OF JFS STAFF MEETING - 3/31 - 4/1

* * * RESTRICTED DISTRIBUTION * * *
* * * RESTRICTED DISTRIBUTION * * *

ATTENDEES: Chamberlain, Cudmore, Demmer, Farrahar, Fuller, Zeh (for Glorioso), Hanson, Freidrich (for Heffner), Johnson, Koteff, LaCava, McCabe, Metzger, Palmer, Saviers, P. Smith, Strecker

MARCH 31, 1988

I. AFFORDABILITY - George Chamberlain

George reviewed progress todate on the affordability effort, stressing the new learning we have gained on understanding product businesses. He suggested that we should be putting much more focus on cost, as apposed to only gross margin. The work is not yet done. We still have a large, serious expense problem. We will have to make some tough decisions.

John Heffner then provided a summary of inputs, showing "suggested solutions" of about \$500M. The real question is how much of this is real. (For example, only \$198M is "agreed to"). He showed the progress function by function, indicating where work is needed (primarily Manufacturing, assuming the Engineering savings proposed are real).

Bruce Osterling detailed the Manufacturing categories of expense. Grant pointed out the need to synchronize project spending (E97) with engineering. George answered that we will try to do this in the future.

We then turned to a group by group review of progress:

Bill Picott spoke for LES/SSM, showing a remaining \$63M delta (33% remaining of original problem). He suggested some global changes - an integrated MEM planning process, and a "systems down to components" flow. Some of their specific recommendations: move

support engineering back to Engineering; restructure PBU's, moving to two eventually; consolidate some of the LES and SSM structure; re-examine the costs/justifications for presence; in general, structure around technologies. They further recommend an STF-like process for manufacturing investments; consolidating the various business centers, and a corporate review of the SCO strategy. In general, they are 80% confident of hitting their submitted numbers, but have no feeling yet for the remaining \$63M.

Joe Zeh presented the results for HPS. They have identified \$20M, are working on another \$44M, and still have \$41M unidentified. Their solid \$20M is in Engineering. Manufacturing is still being worked.

Joe felt there are a number of area's of opportunity, but they are based on some serious product and charter issues that need to be addressed. In reviewing the numbers, Joe felt they could save 20-50% of the Manufacturing proposals, and 80+% of the Engineering.

Don Jennings reviewed MSB's work - yielding \$63M to date, \$65M proposed, and a continuing \$35M delta. \$13M of the savings are in Engineering, the rest primarily in Manufacturing. They are proposing to manufacture only in Salem, Puerto Rico and Galway (specifically not Phoenix). This plan would allow direct technology alignment for the short term, and reduce costs. They are also suggesting consolidating business centers; zero base budgeting for SASE; and flat spending for a number of administrative and overhead functions (MCAM, Demand Supply, etc.).

Grant spoke for Storage - they are about half way to their goal of \$135M reductions. The lion's share of savings will be in product cost reductions (particularly in large disks). Other reductions are spread across E97, NPSU, business centers, and central functions. They feel they may get \$90+M total.

Glenn Armbruster covered the NaC issues, which still has a \$23M problem. A third of it is in product cost, the rest spread across various areas. They are pursuing a number of organizational alignment issues, value engineering, and improving the financial performance of new products. They also believe there is upside revenue potential. They currently have \$16M "agreed to," but are yet not confident of it.

Don Metzger then showed the results to date in the PTCT process. They believe the current \$318M (from \$385 request) can be worked down to \$250M. The actual spending groups are showing \$341M, so much work remains to be done. He reviewed the potential savings by domain, the total of which might add to \$70M. There was much discussion about how to attack this - whether to use the currently functioning process or let the groups do it. The general consensus was that if 80% of the problem is driven by the CPU groups, they should work that in a small group. The PTCT team should work what is left over.

George then outlined some next steps:

- teams continue to work
- manufacturing sets transfer costs,
- functions respond with plans to meet targets (4/20/88 budget submission)
- PBU's work with MBU's to reaffirm capacity needs
- Systems integration costs should be examined to be sure we are addressing them in this process

Grant suggested there might be other areas of great potential savings (Demand Supply, product qualification, cost of control/management, etc.). BJ suggested we need to look at our product complexity, which drives many costs.

Jim urged George to assemble a list of the proposed actions, and a process to track them. Groups should be very specific about the results of their proposed actions when they do their 4/20 submittals.

II. STORAGE INVESTMENT - Tom Burniece, Charlotte Frederick, Steve Smith, Greg Plakias

Tom showed the growth expected in storage products out of MLD, indicating continuing growth for the next several years. He stated that CEDAR & ASPEN will be on or ahead of the industry curves, and that the costs of the investment fit the business model.

Charlotte then reviewed the actual proposal, showing the group moving from buyout base technology to in-house proprietary build, with a 10 fold increase in density. She believes our position with the RA90 will be strong, and we should build on it. The sources of outside technology are few, and the investment required will be large. (A review of the costs to get the RA90 showed this to be true).

The capitol request shows the need for \$82M in FY89. One major assumption around the "make" strategy is the lack of quality supply; another is the unstable nature of the vendors. The risks are in the technology and planned volumes primarily. There was much discussion about yields and risk.

The staff supported their going to Executive Committee and the Board.

III. MEM ORGANIZATION

Bill Hanson lead a discussion of the overall MEM organizational status and direction, focused by his concerns that we are not facing up the necessary tough problem decision. He feels that the problems he sees are not the result of FY88 or short term issues - they are long term and require risk taking, but must be in synch with our style and culture. They have to do with aligning goals, distributing decision making, reducing lengths of command chains, developing general managers, the size of task groups, etc.

He then related these concepts to Manufacturing, which prompted much discussion about where value would be added, where the checks would

be, where revenue responsibility would be, etc.

There was a general feeling that this is the first of many such discussions. Several people felt we should not wait to sort out the whole picture, but begin now to move on "the little steps." Many ideas from the Affordability project, for example, can be implemented without overall structural change.

III. SECURITY TASK FORCE - John Holz

John focused on two issues:

- Securing the network development environment
- Understand the risk of delivering security compromised products

He outlined the risks both to us internally and externally, which provoked some discussion about how we compare with others, the technical issues, etc.

Short term we need policies to close holes, tools to do it and verify it, and mandated operations and procedures. We are creating policy documents and tools, and depending on JFS Staff to enforce issues. There was much discussion about implementation. BJ suggested using the network contacts. Implementation will take 4 people and one quarter.

For the medium term, we have a long list and will begin working on the problems. Longer term we must do architectural work for a year, leading to a full effort to fix issues such as authentication, authorization, cryptography, privacy, etc.

The staff agreed to continue with this work; it's important. They agreed to continue to support it.

V. SCO UPDATE ON CAPACITY - Bob Palmer

Bob overviewed the recent ramp up in CMOS parts.

We've increased production four fold from the first of this year, but will be falling behind soon. Mix issues and upside flex can cause severe issues in FY89 and 90. Outside sources will be required, in any case. The real decisions on "how much" will be complicated, and Bob will keep the staff informed.

VI. COMPANY PERFORMANCE - Fran Barton

Fran reviewed performance year to date and projections for FY89.

APRIL 1, 1988

I. DEVELOPMENT PLANNING - Larry Rossini

The staff continued its monthly review of personnel development, and discussed a plan for including CRG members in the review process.

II. STOCK AND SALARY PLANNING - Bob Mulkey

Bob presented a follow-up to previous discussions about the technical leaders stock program. His proposal on starting points for participation was discussed and accepted, and a strategy for allocating extra slots was agreed to (some for manufacturing, the rest held open until the review day).

Bob also gave a preliminary overview of this year's salary program, and pointed out key dates. There was some concern about two specific areas: 1) inability to fit outstanding new hires into our pay ranges (consensus was simply to make exceptions) and 2) whether we have competitive ranges vis-a-vis our primary competitors (Bob felt we do and would be glad to share data).

III. STF RECOMMENDATIONS - Bill Strecker

Bill reviewed the STF process for the year, and then moved to some general observations and the details. His three areas of general concern from a strategic viewpoint were mid/high CPUs, storage and workstations.

Bill then reviewed the groups one by one, noting the major deliverables in each plan, commenting on STF's concerns about organization or management, and providing backup information when needed.

Bill Koteff then distributed the report package, which contains a written set of comments for each group, a summary of the groups and organizations, and detailed spreadsheets for each group.

Bill Strecker then returned to discuss his views on affordability in relation to the Engineering Organization. He believes we need to rethink how many design centers (platforms) we are building, and suggested five or six as the proper number (we probably have twice that number now). This prompted a discussion of what the future system and I/O strategies really are, and the suggestion that we devote some serious staff time to learning about what is now in the plans and what alternatives we have. Bill agreed to do this in conjunction with the staff and STF.

IV. SHORT TOPICS

- Jim Cudmore urged the staff to decide once and for all on the "Arabic Proposal" - ie to add three Arabic speaking countries to the current list of 21. The staff accepted the proposal, based primarily on the analysis done by Peter Conklin. Several line items in the budget address Arabic language work in FY89.

- Bill Johnson asked for candidates for an opening he has in

From: RDVAX::FULLER 18-MAY-1990 08:29:02.79
To: DELUCA
CC:
Subj: print and put in A and in legal/admin

From: FACMTS::FACMTS::MRGATE::"WITNES::A1::PERKINS.JIM" 17-MAY-1990 23:24:58.5
9
To: RDVAX::FULLER,AXIS::LACAVAL,MSBCS::DEMMEER,SHARE::PALMER
CC: CORE::MARTY HOFFMAN
Subj: RISC- Trademarks of MIPS

From: NAME: Jim Perkins
FUNC: LAW
TEL: 223-6982

<PERKINS.JIM AT a1 at witnes at pk

o>
To: See Below
CC: See Below

ATTORNEY-CLIENT PRIVILEGE

DO NOT DISTRIBUTE EXCEPT TO THOSE WITH A NEED TO KNOW

++++
++++

It first came to our attention last Fall that MIPS Computer had applied for a whole series of RISC- prefixed trademarks around the world, e.g., RISCOmPUTER, RISCOmODULE, RISCOBOARD, RISCOsystem, RISCOHIP, RISCOmPILER, etc. We filed opposition to these applications in Australia, Canada, Ireland, South Korea, and Taiwan on the ground they are not registerable.

We also filed a protest against a similar IBM application for RISC SYSTEM/6000 in the U.S. and have succeeded in having the U.S. Patent Office make IBM disclaim all rights in the generic "RISC" apart from the mark as a whole. While we succeeded with IBM, MIPS has refused to disclaim trademark rights in RISC, so our problem with them continues.

It is interesting that while IBM has tried to register a RISC formative in the United States, it has opposed a number of MIPS' RISC- applications in Canada. Motorola has also opposed them in the United States.

RISC is the commonly accepted generic acronym in the industry, standing for the generic terminology "Reduced Instruction Set Computer". As such it denotes a certain general class or type of computer, without denoting origin in any one particular manufacturer as a trademark. "Computer", "Module", "Board", etc., are similarly generic. Combining two generic terms into one word does not make the combination a trademark (e.g., TURBODIESEL and SURGICENTER have both been denied registration in the U.S.).

The reason we cannot allow MIPS to obtain registration is their prior registrations would foreclose our registration of a RISC formative trademark, a risk Digital should not have to entertain. Our product personnel inform us they may well want to join "RISC" with one of our family marks, i.e., VAXrisc or DECrisc, for the Alpha product.

However, in view of the ongoing business relationship, we have made several proposals to settle the matter without success. MIPS continues to try to register without disclaiming rights in RISC. We are now proposing they add a

more registrable term such as MIPS CO in front of their RISC marks, e.g., MIPS CO RISC BOARD, and then disclaim the RISC BOARD portion. If they do not agree to that, we will have to continue our oppositions.

Should anyone from MIPS contact you on this matter, please refer them to me.

To Distribution List:

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NAME: RON MYRICK <MYRICK. RON AT al at witnes at pko>,
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NAME: AL CEFALO <CEFALO. AL AT al at witnes at pko>,
NAME: JOHN GUNTHER <GUNTHER. JOHN AT al at witnes at pko>,
NAME: Bill Cray <CRAY. BILL AT al at witnes at pko>
CRA>

From: RDVAX::FULLER 18-MAY-1990 08:20:43.30
To: DELUCA
CC:
Subj: print and file in legal/admin

From: FACMITS::FACMITS::MRGATE::"WITNES::A1::PERKINS.JIM" 14-MAY-1990 15:37:59.6
1
To:
CC: RDVAX::FULLER,WITNES::KOTULAK,AXIS::LACAVA,HYDRA::CUCCIA
Subj: IBM's "RISC SYSTEM/6000" TM Application

From: NAME: Jim Perkins
FUNC: LAW
TEL: 223-6982 <PERKINS.JIM AT a1 at witnes at pk
o>
To: See Below
CC: See Below

Ron, we just received notice from the USPTO that our Letter of Protest against IBM's trademark application for RISC SYSTEM/6000 has been granted. The file has been returned to the Trademark Examiner for him to consider our evidence that the terms "RISC" and "SYSTEM" are generic terms of art in the computer field used by many computer manufacturers.

I think the chances are good that the Examiner will require IBM to disclaim all rights in "RISC" and "SYSTEM" apart from the mark as a whole, which is what we want. The Letter has worked well, enabling us to stop a competitor from appropriating generic terms, at a much more minimal cost than an opposition would entail.

Our worldwide watching service should pick up any applications they file abroad once they are allowed. Those we will have to oppose. Nonetheless, this is a good shot across IBM's bow to let them know we won't allow them to steal these terms from the public domain.

To Distribution List:

NAME: RON MYRICK <MYRICK.RON AT a1 at witnes at pko>

CC Distribution List:

FULLER @RDVAX @VAXMAIL,
NAME: AL CEFALO <CEFALO.AL AT a1 at witnes at pko>,
NAME: BILL CRAY <CRAY.BILL AT a1 at witnes at pko>,
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NAME: EILEEN ZAKI <ZAKI.EILEEN AT a1 at witnes at pko>,
LACAVA @AXIS @VAXMAIL,
CUCCIA @HYDRA @VAXMAIL,
NAME: Jan LaRue <LARUE.JANIS AT a1 at witnes at pko>,
NAME: Angela Busby <BUSBY.ANGELA AT a1 at witnes at pko>,
NAME: Nancy Pleau <PLEAU.NANCY AT a1 at witnes at pko>
CRA>

f: legal/admin

Great Names.

If you have to explain a product's name to your customers or your general manager, it's probably not a great name.

Crisp, relevant and perfectly constructed, a great name speaks for you. In less than a second it communicates an idea, creates interest, tells a story. It is the hardest working asset in your marketing portfolio. And since it's created to terrorize the competition, a truly great name is never boring, bashful or awkward.

We create names using a unique combination of personal creativity and constructional linguistics. Our approach is designed to develop solutions across the entire spectrum from real words to invented names and our Linguistic Appraisal System (LAS) helps us to select the best name based on semantic and phonetic principles. Clients include Apple Computer, General Mills, Hewlett Packard, Keebler, Pfizer, Shell, Syntex and Subaru. **Contact David Placek, President, at 415-332-1811, 3030 Bridgeway, Sausalito, California 94965.**

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FEB 1 1990

SAM FULLER

Sam
January 23, 1990

STRATHMORE WRITING
FIBER USA

Mr. John F. Smith
Sr. V.P., Engrng, Mfg., & Prod. Mkg.
Digital Equipment Corp.
146 Main Street
Maynard, MA 01754

Dear Mr. Smith:

If new products are on your 1990 agenda, you may want to talk with me about how Lexicon® Naming Consultants can help you develop and select effective trademarks.

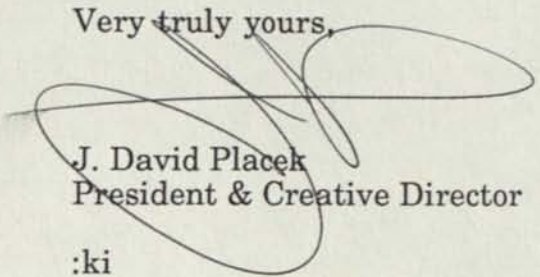
I founded Lexicon ten years ago in the belief that naming would become increasingly more difficult and that clients would need the assistance of outside resources.

We create names using a unique combination of personal creativity and constructional linguistics. We select the most effective trademarks using our Linguistic Appraisal System (LAS) and can validate our marketing and linguistic judgement through research.

A list of our clients is attached for your quick review.

If you'd like more information on our approach, our clients or our credentials, I'd be delighted to arrange a presentation.

Very truly yours,



J. David Placek
President & Creative Director

:ki

Encl.

P.S. With the new changes in U.S. Trademark Law, the U.S. Patent and Trademark Office estimates over a 100,000 new applications in 1990 -- making it a tough year for getting a new trademark.

From: RDVAX::FULLER "Sam Fuller" 5-NOV-1990 11:08:45.84
To: NM%WITNES::LESTER,CONNORS
CC: DELUCA
Subj: Comments on Pub. Policy.

Jerry, I appreciate you streamlining the publication policy. It needs it.

Your memo was looking pretty good until I got to Attachment I. This has been the topic of MUCH discussion at CRA staff. Please don't send this out to rest of CRA until you have had the chance to discuss this with Agnes.

The problems in Per. Policy 6.30 is ii) and iv). If the publication cannot contain any technical info. of "current or future benefit to Digital's competitors" then the only papers that meet this criteria are one void of any new technical information. Obviously the corporate does not want a Reserach Group to only publish papers with no new technical content!

This issue has surfaced several times at the CRA staff over the years. To suggest we use the orginial 6.30 policy without appropriate change for the Research Group will be like throwing gasoline on a dying fire.

On a more minor note, it seems to me we ought to get signatures of author, Consulting Engineer in area of expertise but not a co-author, Lab. Manager, and VP of Research. The one name I would drop is IP Committee chairman.

Thanks for working on this, Sam.

Printed by Sam Fuller

I N T E R O F F I C E M E M O R A N D U M

Doc. No: 006627
Date: 01-Nov-1990 08:37am EST
From: JERRY LESTER
LESTER.JERRY AT al at witness a

Dept: LAW
Tel No: 223-6571

t pko

TO: See Below

Subject: Publication Approval Template

In view of my increased responsibilities which now include CRA, ISB and a new organization, the Corporate Licensing Organization which currently is being formed, I have to concentrate my efforts on high-risk legal issues directly affecting the company's business until such time as I am authorized to hire or have assigned additional counsel.

Accordingly, I am in the process of streamlining repetitive practices in which legal risk is low, or in which legal risk may be controlled to a reasonable degree without the direct presence of counsel.

The attached publication template is intended to provide local management with a sufficient guideline to approve publications without incurring unnecessary Law Office delay, and to determine when involvement by the Law Office is required.

Your comments will be appreciated.

Distribution:

TO: * Gwyned::ZIA AT al at witness at pko
TO: * CSGDEC::STEUL AT al at witness at pko
TO: * HYEND::WHITMAN AT al at witness at pko
TO: * HYEND::SCHMIDT AT al at witness at pko
TO: * MENTOR::BMYERS AT al at witness at pko

CC: RON MYRICK (MYRICK.RON AT al at witness at pko)
CC: * HYEND::TCAMP AT al at witness at pko
CC: * RDVAX::BLAKE AT al at witness at pko

TO: Counsel --
see 5 min call
on this
JAM

PUBLICATION TEMPLATE

Approval Form

The first step in approving any proposed publication is the review of the written material by those parties who best may represent the company's interests. In the attached Publication Approval Form (Attachment I), the authors in the first instance are required to personally commit to the assertions listed as (i) through (v), and the remaining signatures are intended to represent the remaining primary corporate interests in corroborating the correctness of the assertions.

The approval form also serves to protect the authors from any perceived conflict of interest.

If items (i), (ii), (iv) and (v) are not correct as stated, the right to publish must be denied until the offending material is excised.

If item (iii) is not correct as stated, the publication and any disclosure to a publisher must be delayed until the cognizant IP Committee has had an opportunity to review any disclosed innovations and file patent applications as appropriate.

Immediate Manager Or Publication Staff Review

In addition to seeking the indicated signatures of Attachment I, the Research, Product or Business Unit representative responsible for coordinating the publishing of articles, or the Immediate Manager(s) of the author(s) of the proposed publication if no publication representative is designated, should review the proposed publication to determine the following:

1. Are the trademarks of Digital and other parties which are used in the proposed publication, and the owner's of such trademarks, properly identified?

This may be handled by an inside title page notice or a footnote as follows:

"XXX is a trademark of ABC Corporation".

2. Are all trademarks used properly?

A trademark is a proper adjective and should always be followed by a generic noun such as "system", "unit", "product", etc.

A trademark should not precede or follow another trademark and should not be modified in any manner. Apostrophes,

suffixes, prefixes, plural forms, etc., should not be added if they are not part of the mark as registered.

A trademark should never be used as a noun.

The United States Trademark Association has prepared a guide for the caring of trademarks, which is attached as Attachment II. Since the guide was written for lay persons, there should be no problem in understanding it. The guide sets out further misuses of trademarks which should not be permitted.

3. Are any negative remarks being made about a person, a competitor's product, or a competitor?

Such language should be stricken. If it were deemed by a court to be libel or slander, Digital may be ordered to make public retractions and pay damages.

4. Are any performance, functionality or design comparisons made between a Digital work product and a competitor's work product?

Such comparisons must be correct and supported by laboratory data to avoid liability. Arranging for a reputable testing agency to independently conduct tests to verify the author(s) assertions will provide a reasonable level of protection.

5. Is the proposed publication based upon or derived from a previous author's writing? If so, the permission of the previous author may be required, and appropriate credit to such author should be made in the proposed publication.

NOTE: If issues arise under items 3, 4 or 5 above, contact your counsel.

PUBLICATION APPROVAL FORM

I am requesting permission to publish the attached article disclosing

(Identify Subject Matter, Title, Publisher, Expected Publication Date). The publishers require that I assign to them all copyright rights in the article.

As a prerequisite to such publication, Personnel Policy 6.30 requires that the following conditions be met:

- i) No Digital confidential and proprietary information is disclosed;
- ii) No unannounced Digital products or research and development projects are identified or described;
- iii) No patentable subject matter is disclosed;
- iv) No unpublished technical information of current or future benefit to Digital's competitors is disclosed; and
- v) No comments are made pertaining to pending litigation or legislation.

It is my belief that all of the above conditions are met. If you concur, please so indicate by your signature in the place identified below.

Author's Name

Group, Section Business or Product Unit

Date

IP Committee Chairman

Consulting Engineer

Immediate Manager

Group Vice-President

Attachment II

[will be sent hard copy]

+-----+TM
| d | i | g | i | t | a | l |
+-----+

I N T E R O F F I C E M E M O

TO: CRA Staff
ISB Management Committee

DATE: 02 November 1990

FROM: Mary Cobleigh

DEPT: Law

CC: Jane Blake
Tom Camp
Ron Myrick

DTN: 223-7579

ADD: MSO/C10

SUBJECT: ATTACHMENT II - PUBLICATION APPROVAL TEMPLATE

I am enclosing Attachment II which was referenced in the "Publication Approval Template" memo which Jerry Lester sent out to you over the system on 01 November 1990.



**A Guide
to the
Care of
Trademarks**

You—each and every employee—play a most valuable role in preserving and enhancing our trademarks. For this reason it is important that you thoroughly understand how our trademarks are to be used.

A *trademark* is a word (or several words), a name, a symbol (such as one or more letters, or numbers, or a design), or any combination of these, used to identify the goods of our company. Some well-known trademarks are KODAK, LYSOL, and TEFLON. The mere use of a trademark to identify and distinguish the goods of our company from those of another creates trademark rights. However, in order to obtain additional advantages most companies register their trademarks in the United States Patent Office.

The *generic name* is the common descriptive name of the product it identifies. For example, "instant lather shaving cream" is the generic name that goes with RISE and "depilatory cream" is the generic name that goes with NAIR.

A trademark must not be confused with a *trade name*, which identifies a company. COKE is a trademark of The Coca-Cola Company. "The Coca-Cola Company" is the trade name.

Trademarks must be protected and cared for or they will be lost. Many trademarks which were once the proud possessions of corporate families have been lost because they were misused. Some famous *former* trademarks are: escalator, kerosene, shredded wheat, cellophane and mimeograph. A trademark is lost when it becomes *generic*, i.e. when it has come to mean the product as distinguished from a certain brand of the product.

If our trademarks became generic, they could be used by anyone and would no longer indicate to the public that the products on which they were used, were made, supplied or sold by our company.

Our company's trademarks are well-known and signify to the purchaser that he is buying quality products from a company with a reputation for dependability and integrity.

Trademarks are one of our most important assets and should be treated with the care due something so valuable.

It is relatively easy to protect and care for trademarks. You need only follow the simple rules listed here. These rules should be followed on all business documents, advertising literature, displays, packaging, labels and correspondence.

If you have any questions relating to the rules of trademark use, call the Trademark Department.

How to care for trademarks.



1. Trademarks are loners. They must be distinguished in print from other words and must appear in a distinctive manner.

A trademark should always be used in a manner which will distinguish it from the surrounding text. Capitalize trademarks completely, or use initial caps with quotes, or as a minimum use initial caps. The generic product name should not be capitalized. If the material is being prepared by a printer, other suitable alternatives for distinguishing the trademarks are to place it in italics, bolder-faced type or a different color.

Example

ARRID cream deodorant
"Arrid" cream deodorant
Arrid cream deodorant

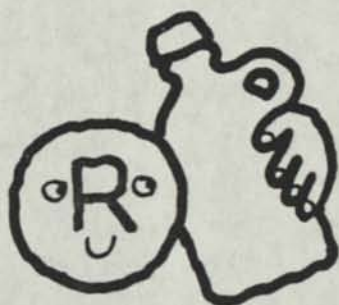


2. Trademarks are status seekers and ask that they be followed by a notice of their status.

Whenever possible a trademark notice should follow the mark. As a minimum requirement, it should be used at least once in each piece of printed matter and preferably the first time the trademark appears. If a trademark has been registered in the U.S. Patent Office, the registration notice* or "**Reg. U.S. Pat. Off." should be used. The * or Reg. U.S. Pat. Off. should never be used if the trademark has not been registered for the product concerned. In such a case, the letters TM should follow the mark or an asterisk can be used to refer to a footnote stating, "**A trademark of -----."

Example
ANSCOMATIC® camera
SHEETROCK® gypsum wallboard
XYZ™
XYZ†

*Reg. U.S. Pat. Off.
™(if the mark is not yet registered)
† A trademark of X Company



3. Trademarks like good company and should be accompanied by the generic name for the product they identify.

A trademark is a proper adjective and should, whenever possible, be followed by the common descriptive name (noun) of the product. This should be done at least the first time the trademark appears in a piece of printed material.

Example

<i>Trademark</i>	<i>Generic Name</i>
KODAK®	cameras
JEEP®	vehicles
VASELINE®	petroleum jelly
LEVI'S®	jeans and sportswear

The word *brand* may also be used to reduce the possibility that the trademark will be thought of as the generic name for the product, or a line of products. When used, it should always appear in small print.

Example
BAND-AID® brand adhesive bandages
SCOTCH® brand transparent tape
PYREX® brand heat-resistant glassware



4. Trademarks are not clinging vines. They are never possessive.

Never use a trademark in the possessive form.

Example
Correct—
The good taste of FRENCHETTE® low calorie salad dressings.
The fine quality of CURITY® diapers.

Wrong—
FRENCHETTE'S good taste
CURITY'S fine quality



5. Trademarks are singular.

Since a trademark is not a noun, it should never be used in the plural form.

Please note, however, that some trademarks actually end with "s" such as KEDS®, COETS®, Q-Tips®.

Example

Correct—

Take some pictures with KODACOLOR® film.

The doctor prescribed MILTOWN® tranquilizer tablets.

Wrong—

Take some KODACOLORS.

The doctor prescribed MILTOWNS.



6. Trademarks are never common. They are always proper.

Trademarks are proper adjectives and should never be used as common descriptive adjectives.

Thus, never use a trademark for a raw material to describe finished products made from it.

Example

Correct—

This flotation equipment made of STYROFOAM® plastic foam can be readily installed.

Wrong—

This STYROFOAM® flotation equipment can be readily installed.

Since a trademark is a proper adjective and not a verb, it should never be used as a verb.

Example

Correct—

Make six copies on the XEROX® copier.

or

Make a photocopy.

Polish your car with SIMONIZ® paste wax.

Wrong—

XEROX® the report

SIMONIZ® your car



7. Trademarks are proud of the companies that own them.

If it is not readily apparent who owns the trademark, for example, where the company letterhead is not being used, a notice of ownership should be given. This can be accomplished by placing an asterisk after the trademark, which refers to a footnote stating that the trademark is the brand name for a product which is made by our company.

Example

JELL-O*

*JELL-O is a registered trademark for dessert products made by General Foods.

★ ★ ★ ★ ★

And, if you still have questions about trademarks, call the Trademark Department.



THE UNITED STATES TRADEMARK ASSOCIATION

6 East 45th Street, New York, New York 10017

From: RDVAX::FULLER "Sam Fuller" 22-OCT-1990 11:25:29.63
To: DELUCA
CC:
Subj: print and put in A

From: POWDML::LESTER 18-OCT-1990 18:09:57.25
To: RDVAX::FULLER
CC: LESTER
Subj: LEGAL SUPPORT TRANSITION

As of today, I have talked with each member of your staff and have received their support in the following approaches:

1. Due to budget restrictions, there will be no more outside counsel support on the West Coast for matters other than patent application preparation and prosecution issues. Beverly Bellows and I will have to coordinate closely to fill the gap.

2. I intend to develop templates to be used by your managers in approving publications. Unless an item on the template is triggered, I will be out of the loop. My concern is that due to the work load I now have in supporting CRA, ISB and a Licensing Organization, I will not be able to review the publications in a timely manner. I do not want to cause delay unless a serious legal issue arises.

3. To spread the risk of doing business equitably, without incurring undue risk, I will embark on a teaching campaign to raise sensitivities to the type of legal issues that most often occur. In addition, I intend to develop standard agreements as appropriate, and review old standards to keep them current. Negotiations within the bounds of the standards can proceed without my intervention. Where deviations occur, I will review the revised clauses.

4. I have brought the Patent Services Law Group into your patent program directly. They will be coordinating with Hector Torres on invention disclosure and patent application matters occurring in CRA.

5. To give the one-on-one guidance which is needed in the laboratories, I will supplement telephone availability with on-site visits to the extent that present budget constraints will allow.

I will appreciate your comments on the above as a proposed approach to providing legal services without additional attorney hires or reassignments to fill our current vacancies.

f: ~~total~~ / LAW ADMIN

ABOUT THE PROPOSED FY91 ELAW BUDGET:

In FY91 the proposed amount to be cross-charged back to Engineering is \$16.6M out of a total Engineering Law budget of \$20.2M.

The FY90 to FY91 increase (\$14.3M to \$16.6M) in the cross-charge is \$2.3M.

Of that amount, \$1.3M will cover additional headcount consisting of nine engineers, five secretaries, & two legal assistants. All positions are to be filled internally and are to represent a shift of resources within the Company (predominately from Engineering to the Law Department). Neither budget (Engineering nor Law) will be impacted to any real extent, since most of the resources are taken from Engineering and then charged back to Engineering.

The other \$1.0M is an increase in legal fees (outside counsel expense) associated predominately with prosecution of patents filed in previous years. Prosecution expense is mounting year-to-year because of the ramp-up in filing volumes dating back to FY87/FY88. This is highlighted below:

	FY85	FY86	FY87	FY88	FY89	FY90 (fcst)	91	92
# patents filed	29	63	126	275	275	260	300	307

The prosecution expenses reflected in the cross-charge will peak in FY92 for U.S. filings and in FY93 for foreign filings, due to the maturing of patent applications filed in prior years. It is anticipated that the contribution made by the nine patent engineers will offset most of this bow-wave effect.

If the proposed budget is not approved the only way to meet a reduced budget would be to reduce outside counsel fees, which would necessitate either reducing the number of patent filings or abandoning previous filed applications.

June 4, 1990

From: RDVAX::CONNORS "Agnes Connors, 223-5745" 10-OCT-1990 08:26:52.89
To: WITNES::MYRICK
CC: FULLER,CONNORS
Subj: CRA LEGAL SUPPORT

Sam asked me to confirm that we could count on Jerry Lester as our CRA counsel for at least two years. As you know, Jerry is our third attorney in two years. Continuity is important to us. Please confirm that you are in support of at least a two year commitment and that this is Jerry's understanding also.

Agnes

To: @CRASTAFF
CC: @OPS MGRS,AIRG::MCDERMOTT,JOVE::DCROCKER,CONNORS
Subj: LAW DEPT - ORGANIZATIONAL CHANGES

The Law Department has reorganized and the bottom line is that Jerry Lester will be the CRA attorney replacing Barry Young.

Agnes

From: RDVAX::TORRES "Intellectual Property - 223-1010" 24-AUG-1990 17:06
:28.48
To: GANNON
CC: CONNORS,REED,TORRES
Subj: The long awaited LAW DEPT Reorg - FYI

From: NAME: LESLIE WALLACE
FUNC: Law Department
TEL: 493-6400

<WALLACE.LESLIE AT al at witnes at

pko>

Press RETURN for more...

MAIL>

I N T E R O F F I C E M E M O R A N D U M

Doc. No: 000219
Date: 24-Aug-1990 01:53pm EDT
From: LESLIE WALLACE
WALLACE.LESLIE
Dept: Law Department
Tel No: 493-6400

TO: See Below

Subject: LAW DEPARTMENT 1990

THIS MESSAGE IS FROM MARTY HOFFMANN

THE LAW DEPARTMENT 1990

INTRODUCTION

Since the ILM we have all had the opportunity to absorb more fully and reflect upon the Law Department organizational changes and dynamics and the objectives underlying them. These changes are driven by a pressing need to improve the way the Department sometimes practices, as well as to accommodate important changes in the Company structure.

I believed that it was important at the ILM to initiate a discussion of these changes in our relationships, our partnership, and how we can be a more responsive organization. The discussion included a number of decisions on individual assignments even though the new plan was only partially complete. Many of you felt uncertain about the indirect effects of the changes. A number of individuals who were not depicted in the partial description of the cluster organization were very deeply concerned that their situations had not been reviewed and that their career prospects had been damaged or precluded in the course of our development of the plan to date.

To repeat, I regret that the handling of the matter at the ILM gave that impression and caused alarm and anxiety. My admiration for the Department has been reinforced by the spirit in which you have presented your concerns and aspirations, for both individuals and the Department. I want to assure each of you that I care deeply about you and the success of your career as a member of our partnership. The GC Staff and I are resolved that the changes in the Department proceed in that spirit. We have learned a great deal subsequent to ILM week and are proceeding with those lessons firmly in mind.

This memo will set forth the implementation of the plan as it has been evolved to date. Please understand that the full design and implementation of the cluster organization is not yet complete. Completion will depend upon developments in the Company which are still evolving. As changes are made they will be designed to minimize

disruptions to the Department and to our overriding professional obligations to the Company. Until specific changes in responsibility are announced, every member of the Department should continue to provide the customary high level of professional service to their existing client groups. Implementation of the new organization will begin on September 4, 1990. I address this further at the end of the memo.

In this context it is helpful to consider the Law Department in its larger context as a Company support function. The Department is obliged to mold itself to the Company's structure; it has no independent *raison d'être* unrelated to that support. Our new organization must take this into account.

THE CONCEPTUAL ELEMENTS AND BASIS OF THE NEW STRUCTURE

The overall objectives of the reorganization are to continue to move the Department toward a flatter, laterally oriented, coordinated organization from a hierarchical and sometimes directive posture.

The requirement of our practice is, and increasingly will be, to coordinate quickly and laterally between and among the different attorneys of the Department, both in support of individual lawyers and to assure coordination of positions taken and priorities assigned.

Teamwork is an indispensable element. We must all do all we can to increase our understanding both of the specific legal practice of others and the culture in which we each practice. Being on a team requires specific knowledge of and respect for the contribution of the other team members.

Accordingly, lateral relationships that cut across the vertical, administratively based "wiring diagram" organization will be essential. These include:

- o Centers of expertise; i.e., the links across geographies of individual attorneys who have and are developing legal knowledge and experience in key legal subjects and areas, and who will team to meet global needs;
- o Client and subject area task forces; i.e., team efforts to link across the breadth of the Department those elements that will address the priority business matters -- ABU's and EIS will be among the first; and
- o Career development models that have as their objective assurances to each member of the Department that all will have access to training, experience, responsibility and mentorship in a global context, to assure that each of us has the ability to fulfill his or her potential on a timely and satisfying career path.

I cannot over-emphasize that each of these horizontal relationships is a means to encourage and support collegial, team-based approaches to our working relationships. They are the means by which our vision of a worldwide, interdependent partnership will be achieved. They should always assist rather than hinder the fulfillment of our shared professional obligations. The new structures and focus on the practice will make it easier to form multi-disciplinary and cross-organizational project teams in meeting pressing Department and client needs.

We also must more easily and effectively team with our business partners, particularly senior level management. We must not only positively influence the Company more than ever before, but we increasingly must provide worldwide corporate communications and coordination in support of our clients.

These objectives of the new organization reflect ideals that have been expressed by many of you.

LAW DEPARTMENT OPERATIONS

Our focus will be on the cooperative, efficient and professionally satisfying practice of law in which each of us may serve varying roles in different situations, sometimes seeking advice from our colleagues and sometimes giving it. Each of us, whether nominally a "generalist" or "specialist", will serve as counselor and client to our fellow lawyers from time to time. We must be prepared to fill these different roles in a collegial, supportive manner.

Headquarters and specialist attorneys must be focused on service to the field and line attorneys supporting the business decision makers. All lawyers must consider themselves to be field, corporate and international so that we, as a partnership, best serve the interests of the entire Company consistent with such overall corporate considerations as may obtain in a given case.

While any Digital attorney's principal client always remains the corporation, his or her assignment and day-to day activities usually are in direct support of a particular operational business manager. In all but extraordinary situations, there should be no conflict between the principal and particular clients, and in fact we may be the instruments of conflict resolution should one arise.

The attorney geographically closest to the transaction or event involving an operational business manager will have the responsibility for identifying and assembling an appropriate ad hoc team to provide the necessary legal support for the transaction or event. Normally, that attorney will remain the lead attorney as respects that business manager, although the lead could shift internally within the ad hoc team, depending upon the issue and team member expertise and experience. The key in this dynamic is for the specialist attorney to defer appropriately to the lawyer on the scene who, of course, must know the limits of his or her own expertise and seek the advice of and then defer to the subject-matter expert as appropriate. Pride, "turf" and ego must play no part. Clients expect and deserve only the most expert, experienced advice from the Law Department.

EXPANSION OF THE GENERAL COUNSEL STAFF

The first step in the new structure for our partnership is an expansion of the General Counsel Staff. As announced on August 1st, I have asked Cary Armistead to join as a permanent member and a new Assistant General Counsel. In addition, Jacques-Henri Brisac, Al Cefalo, John Henderson and Bryan Robb have agreed to serve

as members of the Staff in a representative capacity for the next year. Thereafter, other members of the Department will serve so that we may continue to have a broadened representation of views and outreach.

The responsibilities of the General Counsel Staff for coordination and communication will increase and include expanded roles in critical areas such as hiring and performance reviews, and career development which will help us use Department-wide standards accepted throughout the partnership.

Jerry Lewis, our new Director of Administration, will also be a member of the General Counsel Staff. Jerry brings renewed vigor and broad knowledge to the Law Department administrative functions. It will be his mission to bring our administrative support to a level so that all of our attorneys are as free as possible to spend their time practicing law. He will coordinate efforts to provide our practice with the best possible electronic and other tools with which to work. Importantly, Jerry will strengthen our career development process so as to facilitate our ability to help each of us work toward our career goals.

CLUSTERS AND CLUSTER COMPONENTS

The cluster structure described in the August 1st meeting is designed to reflect and foster a coordinated and less directive working style within the Department. It is intended to promote a high degree of professional independence and to speed and facilitate the lateral coordination of resources by de-emphasizing hierarchy and structure. The cluster structure is also intended to facilitate communications and provide a means to reach and implement with greater uniformity the positions advocated and taken by the Department in the course of our practice.

The clustering dynamics are key features of the new organization. In addition to the Assistant General Counsel (AGC), who is the senior attorney in the cluster, there are several components in each cluster. Each component group is comprised of a number of attorneys and has a particular legal or client focus or responsibility for a specific business or geography. The leaders of a number of these components have a direct reporting responsibility or direct line to the Office of the General Counsel (OGC). This dual reporting relationship from the clusters represents a shared operational coordination by the AGCs and the OGC born of the need to integrate resources increasingly rapidly and effectively across the Department. The leaders of other components within clusters have a direct reporting responsibility to the cluster AGC.

The AGC's operational role is one of fostering coordination across the individual cluster, while the OGC operational role is coordination laterally across the Law Department, or across all clusters. The

balance between these two coordinating responsibilities will vary from cluster to cluster. Operational styles in the geographic clusters will differ from those in the corporate and specialty clusters. Specific cluster operating parameters will be determined by the requirements and operational situations of the clients served by the cluster and the most effective development and utilization of cluster resources.

The principal objective of creating direct reporting by component leaders to the OGC, however, is to create a new, flatter peer structure closer to the operating level of the organization. With this peer structure comes the expectation that individuals within different clusters will go directly to one another for interaction and support as circumstances warrant. They will have the responsibility to initiate full coordination as required by individual situations, and to assure effective communication both laterally and, after the fact, to their AGCs to allow appropriate adjustment of the organization to their actions.

In thus moving responsibility and freedom of action closer to the client, we are placing heavy requirements and responsibilities on individuals. In many parts of the organization, we have already been operating in this mode.

We have attempted in our initial designation of components having a direct line to the OGC to consider factors that promote the continuing evolution of the desired work-style of the Department. The touchstones for these selections included a blend of the following:

- o The centrality to the Company business of the client group represented;
- o The frequency and importance of matters coordinated within the Department (including coordination for Executive Committee purposes);
- o The geographic aspects of the clients served; and
- o The stability of the client group's definition and charter in the evolving Company organization.

We recognize that arguments could be made for other components to report directly to the OGC. Indeed, others may well evolve over time. All components and individuals should feel they are growing toward a full measure of both responsibility and recognition as the Company and the Department grow and evolve.

Within components, the job of the leaders -- and in many cases, including the Field, there are multiple leadership roles within a component -- must be to focus on and assure the delivery of

professional services. Being closest to the client group and its issues, lead attorneys will have the primary responsibility for assigning individual attorneys within the component to particular client responsibilities. Components within one cluster can request and receive support from components within the same or another cluster without going through the cluster leadership. Lawyer to lawyer must be our dominant practice style. The coordinating AGC provides a level of support appropriate to the particular situations.

A sense of shared responsibility should extend to all internal professional issues as well as our professional obligations to the Company. For example, while cluster component leaders and the respective AGC will play a strong role in the performance review process, that process will include the views of the members of the General Counsel Staff, Centers of Expertise and project leadership, as well as clients.

CLUSTER BY CLUSTER STATUS REPORT

The seven clusters which we have announced are as follows: Europe, GIA, United States, ABU's, Intellectual Property/Engineering, Specialities and Corporate. The reporting relationships and support models, the number and structure of the clusters and the number of cluster components which we are establishing reflect today's assessment of the future Company organizational direction. They will not remain static. Changes will occur over time as the Company organization is further defined and as the needs of client groups and our operations change and evolve. Indeed, two components have been added within the Intellectual Property/ Engineering cluster. The leaders of these components, like those announced on August 1st, will have a reporting relationship to the OGC.

In reporting on the status of the reorganization, let me repeat that the evolution and staffing of the clusters is not complete, just as the reorganization of the Company is not complete. The process of defining the needs of each group and matching them to the skills, experience and aspirations of the members of the Department will be ongoing.

EUROPE AND GIA - As announced on August 1st, the country counsel of Canada, France, Germany, Japan and the United Kingdom, in addition to their area allegiance, will have a direct reporting relationship to the OGC. Components supporting specific geographies must continue to support the integrity of existing geography management structures. Beat Stiefel and Art Fisher, as Area Counsel and leaders of these clusters, will continue to coordinate the efforts of all members of the Department within their Areas.

Beth Perdue will join Art and the other lawyers at GIA headquarters in Acton, Massachusetts. Lindsey Kiang, supported by Rick Kotulak, will undertake responsibility for the IP support and coordination needs of

the Field worldwide. They will be part of the Field organization, with essential ties to the IP/Engineering cluster. Their offices will be at GIA headquarters in Acton.

UNITED STATES - Tom Grilk will be responsible for coordinating the U.S. cluster, which embraces all of our existing U.S. Field offices, the current Sales Law Group, the Federal Procurement Group and the Customer Services and EIS components. The Customer Services and EIS Components, headed by Dick Smith and Bill O'Brien respectively, will report to the OGC. In Customer Services, Mary Regan will work with Dick Smith. Their efforts will be bolstered by some focused assistance from Rick Kotulak in his Field IP support role. In the EIS component, Peter Fontaine will work with Bill O'Brien, playing a key role in providing expertise, experience and critical continuity to our support of the EIS business.

We will continue to have all of our law offices throughout the United States. Our offices in Atlanta, Chicago, Detroit, Dallas, Colorado Springs, and Bellevue, WA will continue to report to Tom. We will also carry forward the two multi-office arrangements we now have in the U.S. reporting to Tom. These are the Northeastern group of lawyers led by Pat McMahon, with offices in New York, Landover, MD, and Burlington, MA; and the Western group of lawyers led by Rick Toman, with offices in Irvine, CA and Santa Clara, CA. The Federal Procurement Law Group led by Jeff Schneider in Lanham, MD, which combines both business support and cross-Department expertise in U.S. Federal procurement law, will also continue to report to Tom.

The Sales Law Component, led by Greg Maloblocki and reporting to Tom, will retain its current members and take on an expanded focus in the areas of customer finance and, ultimately, purchasing. This is intended to concentrate in one group our Law Department specialists devoted to particular elements of commercial law. Indeed, the group will be known in the future as the Commercial Law Component. Its current members will be joined by Eric Thorp, who will bring to group both Customer Finance focus and the maturity of many years' experience. The Commercial Group will also assume responsibility for maintaining our expertise in the purchasing law discipline and for supporting Corporate Purchasing, although some appropriate period of time will be required in order for the group to phase into these responsibilities.

As I hope is clear to all of you, in the Customer Services, EIS and Commercial Law areas we are relying heavily on the concepts of collateral support and shared responsibility which are the cornerstones of our evolving style of practice.

We also anticipate that as the roles of the Applications Business Units, the Service Business Units and the DCCs are further defined, lawyers in the Field -- in all three geographies -- will play an important role in meeting the emerging legal needs of these

organizations. We expect that as changes in the company evolve, opportunities for further integration of the Department and additional leadership from the field offices will be presented.

APPLICATION BUSINESS UNITS - This cluster will be led by Tom Siekman, in addition to his duties as Deputy General Counsel. The cluster will include the members of the current Marketing Law Group, joined by Bob Perry, and support the existing Industry Marketing organizations. It will be a key component in integrating our global practice to support the Company's worldwide ABU organization as it evolves. Bob will help conduct a transition into the Commercial Law component of certain Purchasing Law responsibilities as he moves into his new role.

A telecommunications component group has been created. It will form a model for groups in this and other clusters. The Telecommunications group brings together a multi-disciplinary team of senior lawyers to support a multifaceted client organization. Under Dan Bernstein's leadership, he, Dick Paciulan and John Smith will undertake to support the ABU, PBU, regulatory and other aspects of Bill Johnson's emerging organization. This group will further include Jo-Nell Haraldson (in Dallas), Gina Hough, Joe Lewis, and Carter Pledger, and it will have the challenge of coordinating its efforts with the legal support for the client group's activities in Valbonne, France and other locations. In addition to his role as leader of the Telecommunications component to the cluster, Dan Bernstein will assist Tom Siekman in coordinating the activities of the cluster.

INTELLECTUAL PROPERTY/ENGINEERING - This cluster will be led by Ron Myrick, who will have direct responsibility for the following groups from the former Engineering Law Section: Patents, Trademarks, Licensing, Corporate Research and Architecture, Information Systems and Manufacturing.

On August 1st, we announced three components: VAX/VMS led by John Gunther, RISC/UNIX led by Al Cefalo and Software led by Konrad Streuli. We have now determined to establish two additional components. A "Storage/PC Integration" component has been created to support Grant Saviers' recently formed business organization. John Gunther will move from the VAX/VMS role to lead the Storage/PC Integration component and Barry Young will take on leadership of the VAX/VMS component. A second new component supporting the "Semiconductor" operations will be lead by Bill Cray.

As with the Telecommunications component, several components in the IP/Engineering cluster will team senior attorneys of different expertise. Penny Smith will work with Konrad Streuli to bring senior level IP support to the Software component. Vince Pitruzzella, Maureen Stretch and Bill White will complete this team. Jeff Levine will assist John Gunther as the principal legal support for their storage/PC integration client base, which will also be supported by Joe Funk, Bill Kubida and Dana St. James.

Tom Huppuch will work with Bill Cray and bring his broad international experience to support transactions and other matters in the semiconductor component in concert with Barbara Cary and Bob Feltovic. Barry Young will be supported by Maura Moran and Vin Ranucci. Doris Bennett, John Pezdek and David Pursel will complete the RISC/UNIX team. Jerry Lester will take over support of Corporate Research and will develop our new Licensing Office, which will be announced soon. The membership of the Trademark and Patent teams will remain the same, with the addition of Dave Caracappa to the Patent group.

SPECIALTIES - This cluster will be coordinated by Cary Armistead. He will have direct responsibility for three specialty functions: Competition Law, Acquisitions and Trade Law. Tom Ehrgood will continue in his position as Digital's trade law expert.

The Specialties Cluster includes two components: Corporations, led by Gail Mann and supported by Rebecca Hawkins; and Personnel, led by Sy Sackler and supported by Steve Biskup (resident in Colorado Springs and, as manager of the office, also reporting to Tom Grilk) and the other members of the Personnel Law Group. In addition to her responsibilities in Corporations law, Rebecca will continue to support the Acquisitions and Antitrust functions in the area of merger regulation.

CORPORATE - Marietta Ethier will lead the Corporate Cluster. She will have direct responsibility for Litigation, Export and a new Corporate Compliance function. The Litigation and Export groups will remain as currently staffed. The new compliance function is needed to enhance the Company's understanding of its numerous compliance obligations and help view its compliance across the full range of its operations. It will be further defined in consultation with those attorneys having related compliance duties.

The Corporate Cluster includes two component groups whose lead attorneys will report to the OGC: Real Estate and Environmental Law, led by Molly Brennan and Laura Goldin respectively.

As noted at the ILM, Foster Knight will undertake a special assignment in the environmental area in support of an effort to evaluate and formulate the appropriate environmental application marketing approach for the Company for the future. This is the first of what we expect will be other special assignments in pursuance of which an attorney will undertake duties tangential to or outside of the regular fractions of the Law Department.

IMPLEMENTATION

As noted earlier, implementation of the new organization will begin on September 4. In many cases, this will occasion little or no change, for the responsibilities of many of us will be unchanged. Where such

changes do occur, it will be the job of each of us to assure smooth transitions. As an operating principle, we must all see to it that no support now rendered by a particular lawyer is terminated until a colleague assumes that responsibility. It will be the responsibility of component leaders, with any needed assistance from cluster leaders, to ensure the smoothness of these transitions.

CONCLUSION

Change is never easy. We will doubtless need to work effectively amid continuing uncertainty. No one can truly say we are not with an exciting Company and in an exciting industry. With good will and professionalism throughout the Department, I am confident that we can move closer to the vision that we share and increase our effectiveness and satisfaction in the process.

I realize that much still needs to be done. From all of you, we solicit your continued support, comments and questions. I very much value the views we have already received from so many of you.

We are working hard on many matters such as further definition of the "Centers of Expertise" legal practice groups, coordination in the Department to support the Company's new ABU organizational thrust, spreading EIS support responsibilities to meet rapidly expanding needs; and processes for performance appraisals, career development and other professional matters in the Department. You will be kept informed as our deliberations proceed.

Attached is a draft organization chart reflecting the groupings of lawyers which have been described. The chart also depicts our legal assistants, but does not include, at this time, our secretaries. Our secretaries are among our most critical resources, and our final chart will include everyone.

Upon completion of this phase of our Department reorganization, Jerry Lewis will examine the need for reorganization of the Administration Group, in the most part to more closely reflect the way the group presently operates. When complete, a suitable announcement will be made.

To everyone in the Department I ask that you please resist the temptation to overly orient yourself on this chart and specific assignments. The important message, the critical concepts cannot be shown. We are embarking on a new way of doing things, one that emphasizes the practice of law, the value of individual lawyers, our calling of service to the client, our partnership. The organization is merely one depiction of a means to achieve these ideals.

Marty Hoffmann

I/P ENGINEERING CLUSTER

RON MYRICK

RISC/UNIX *

AL CEFALO
DORIS BENNETT
JOHN PEZDEK
DAVID PURSEL (BELLEVUE, WA)

STORAGE *

JOHN GUMIHER
JEFF LEVINE
JOE FUNK
BILL KUBIDA (COLO. SFGS, CO)
DANA ST. JAMES

SEMIS *

BILL CRAY
TOM HUFFUCH
BARBARA CARY
BOB FELTOVIC

SOFTWARE*

KONRAD STREULLI
PENNY SMITH
VINCE PITRUZZELLA
MAUREEN STRETCH
BILL WHITE
BOB CIAVOIA

VAX/VMS *

BARRY YOUNG
MAURA MORAN
VIN RANUCCI

TRADEMARK

JIM PERKINS
JAN LARUE
ANGELA BUSBY
NANCY PLEAU

PATENTS

JOHN MESAROS
DAVID CARACAPPA
HARRY HUOSTOV
SID JOHNSTON
KEN KOZIK
RAM NATH
CLAY SATOW
BILL SKLADONY
MARYANNE REYNOLDS MARTIN

CRA/LICENSING

JERRY LESTER
LINDA CASEY

* = DIRECT REPORT TO OGC

SPECIALTY CLUSTER

CARY ARMISTEAD

TRADE
TOM EHRCOOD

CORPORATE *
GAIL MANN
REBECCA HAWKINS

PERSONNEL *
SY SACKLER
STEVIE BISKUP (COLO. SFGS, OO)
PAUL HENRION
JACK RUGHEIMER

* = DIRECT REPORT TO OGC

US FIELD CLUSTER

TOM GRIK

ATLANTA, GA
JOHN HENDERSON
MIKE CHAMBERS
LIPANNE WHITE

BELLEVUE, WA
RICHARD GELLER
DAVID PURSEL (RISC/UNIX)

CHICAGO, IL
NORMA SUTTON
CHARLEEN REINHOLD
PETER DE BRUIN

COLORADO SPRINGS, CO
STEVE BISKUP (PERSONNEL LAW)
BILL KUBIDA (STORAGE)
WENDY PIFHER

US FIELD CLUSTER

TOM GRILK

DALLAS, TX

FREDY ECKHART

JO-NELL HARALDSON (TELECOM)

RANDY WOOLEY

DETROIT, MI

SIEVE MORELLO

SIEVE ALEXSY

BARBARA SKAGGS

IRVINE, CA

RICK TOMAN

JEFF SMITH

JANIS SUKRAU

NEW YORK

PAT MCMAHON

ELFANOR DOYLE

STEPHANA COLBERT

SANTA CLARA, CA

BEVERLY BELLOWS

DENYSE GROSS

HURLINGTON, MA

ED SERIES

BOB STEINRACH

LANDOVER, MD

JOCELYN WAITE

KEVIN HARTLEY

US FIELD CLERK

TOM GRIK

EIS *
BILL O'BRIEN
PETER FONTAINE

CUSTOMER SERVICE *
DICK SMITH
MARY REGAN

COMMERCIAL LAW
GREG MALOBLOCKI
ERIC THORP
IDA ESTEP
PAM DASHIELL
JOHN CRAWLEY

FEDERAL PROCUREMENT
JEFF SCHNEIDER
MARC RIGRODSKY
JANIS RODRIGUEZ

CORPORATE CLUSTER

MARIETTA EHLER

REAL ESTATE *
MOLLY BRENNAN
JOAN WHITE
NADINE WOODS

ENVIRONMENTAL *
LAURA GOLDIN
CINDY LEWIS

EXPORT
FLORENCE KEENAN

LITIGATION
RICH ALPERT
BOB BRINTZ
ANDY HOLCOMB
JIM SHAUGHNESSY
SARAH SANG
DIRK BRINKMAN
LINDA GRUEBER
SUSAN SWERLING

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ABU CLUSTER

TOM SIEMAN

ABUS *

TOM SIEMAN/DAN BERNSTEIN
DEB BENKOV
GREG CROWLEY
ANN KILLILEA
JOE NEVINS
BOB PERRY
ANDY STONE

TELECOMMUNICATION *

DAN BERNSTEIN
DICK PACIULAN
JOHN SMITH
JO-NELL HARALDSON (Dallas, TX)
GINA HOUGH
JOE LEWIS
CARTER FLEDGER

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GIA CLUSTER

ART FISHER

ACION
JEFF CONKLIN
LARS MATSSON
BETH PERDUE

FIELD IP
LINDSEY KIANG
RICK KOIULAK

CANADA *
BRYAN ROBB
MICHAEL BORLAND
SHARON LAX

JAPAN *
KOHEI WATANABE
TOSHIO ASAI
OSAMU HORIKAWA
KAZUHIRO TOSHIMA

SO. PACIFIC REGION
KIM JENKINS
STUART DAVIS
GEORGE TOUSSIS

KANATA
RAYMOND PICARD

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GIA CLUSIER

ART FISHER

LAT. AMERICA/CARIBBEAN
PAUL MASON

BRAZIL
ANTONIO TRAJANO

FAR EAST REGION
DAVID LENG
PAK-TIM FUNG

TAIWAN
SUSAN SHYY
SS CHEN

INDIA
PREM RAI

EUROPE CLUSTER

HEAT STIEFFEL

AUSTRIA
GERHARD BOLKA

BE, HL, PG, SP

ERIC HERKENS
EMIL SCHADE (BE) (HL)
FRANCOISE VERBIST (BE)
PETER TERPORTEN (HL)
ERIK VAN DIJK (HL)
VINCENIE LAMPAYA (SP)

DK, FN, NI, SW, IS

DAVID DOUBLE
SVEND SORENSEN (DK)
PETER ENGSTRØM (FN)
BENTE LOVIK (NI)
STEFAN OLEMYR (SW)
TOMAS WIKSTRØM (SW)

FRANCE *

J. HENRI BRISAC
XAVIER DE-BOUDEMANGE
ANNE FRIANT
DORINE LOCHIN
ANNIE SIMON

GERMANY *

SYLVIA REUL
KLAUS LUTZ
UWE LAUCKNER
ANKE WÄGENSONNER
PETER SCHMITT (KBO)

EUROPE CLUSTER

BEAT STIEFFEL

ITALY

MARCO DE SANCTIS
SIMONE FRASCHINI

SWITZERLAND

LUCIUS WOCHNER
CHANTAL BISE
PETER NEUENSCHWANDER (VAN)

UK & IRELAND *

JOHN BOYD
NIGEL BAINS
ROSEMARIE BEDDOE
JOHN CHEETHAM
MICHAEL CLIFTON
MICHAEL FALLON
ALAN HAWLEY
ROSS MACMURCHY
PHILIP NISBETT
PETER OLIVER
CHRIS PARKER

EUROPEAN HQ

RON SKRUGGS
ESTHER CORNELIS

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SPECIAL ASSIGNMENTS

FOSTER KNIGHT -- ENVIRONMENTAL

From: RDVAX::GANNON 20-FEB-1990 13:23:05.27
To: FULLER, DELUCA
CC:
Subj: Re: second "war stories" request

Sam,

Aside from the fiasco with Mike Glenn, we have been receiving good support from the Law Department over the past 6 months.

Many of my past war stories are related to the Patent Award program. However, Ron has terminated the incompetent manager responsible for these fiascos, and he has assigned an excellent replacement who has made significant improvements to the program over the last two quarters.

So, I don't have any "war stories" that warrant discussion with Ron Myrick at this time. I continue to have serious concerns about Law support for TP&D in the future when we lose Jerry Lester's support for MCC, SEMATECH, et al.

Regards,
Tom

From: RDVAX::CONNORS "Agnes Connors, 223-5745" 18-APR-1990 15:23:33.21
To: AIRG::MCDERMOTT,@CRASTAFF
CC: CONNORS
Subj: LEGAL STATUS REPORT

Any comments?

From: POWDML::YOUNG 13-APR-1990 15:43:42.83
To: RDVAX::CONNORS
CC: YOUNG
Subj: Status Report

I N T E R O F F I C E M E M O R A N D U M

Date: 13-Apr-1990 03:08pm EDT
From: BARRY N. YOUNG @MSO
YOUNG.BARRY
Dept: LAW
Tel No: 223-5479

TO: Remote Addressee (RDVAX::FULLER)
TO: Remote Addressee (RDVAX::CONNORS)
CC: RON MYRICK (MYRICK.RON)
CC: BARRY N. YOUNG @MSO (YOUNG.BARRY)

Subject: Status Report

Sam,

This is a quick status report on several of the more significant legal matters in CRA.

WRL/SRC: Woody Higgins, outside counsel from Flehr, Hohbach et al, is in place one day a week full time now, with plans to go to two days per week within a month as required.

All identified legal issues are being handled by myself, Woody and Beverly Bellows.

Mach: The licensing problems have been resolved with respect to allowing Digital to distribute the CMU Mach 2.5 version to research partners for research purposes. A license agreement and offering letter has been drafted for George Champine and Dan Geer. Yet to be resolved are the licensing issues around OSF/1, which we are working on.

AI License: Under preparation. Will have next priority.
(McDermott)

Multilisp: Have discussed with MIT Licensing Office. License sent to MIT for their review. Assume it is acceptable.

Stevens : Am negotiating currently. Main issues relate to rights in
(Institute) the resulting technology and royalty issues.

I will be on vacation all of next week, returning Monday April 23rd. I intend to put together a more complete report then and will forward it to you, but wanted to give you an update on the above. If any emergencies arise, call Jerry Lester in my absence.

Regards,

From: RDVAX::CONNORS 8-MAR-1990 10:42:38.63
To: @CRASTAFF
CC: @OPS MGRS
Subj: CRA Legal Support

Sam and I met with Ron Myrick yesterday to review and assess CRA legal support. Ron listened, empathized, offered temporary solutions and discussed possible permanent solutions.

For East Coast people, we should look to Barry Young to satisfy our requirements. Ron is freeing him up from most of his other obligations. For West Coast people, Ron has a temporary solution consisting of Beverly Bellows, outside counsel and Barry Young. He would like to develop this solution in conjunction with Bob and Richard and will contact them directly to arrange a meeting during their trip to Maynard March 20 & 21. Since we hadn't heard of any legal problems with PRL, we assumed the present situation was satisfactory.

Ron also offered to meet with me once a month to discuss how the plan is working. We agreed to do this until August, under the assumption that our legal support will be functioning satisfactorily by then. Therefore, please let me know how things are going (good and bad), promptly and constantly (I may regret that request!).

Your memos to Sam on legal problems were very helpful. Thank you for sending them. We referred to them but didn't show them to Ron. He asked for copies. Would you be amenable to our giving them to him?

I feel good about our meeting and am hopeful that help is coming.

Agnes



Interoffice Memorandum

TO: Sam Fuller,
Barry Young MS01/C10,
Agnes Connors MLO12-3/U35

DATE: 2/24/90
FROM: Richard Swan
DEPT: Western Research Laboratory
EXT: 415 853 6627
LOC: UCO-4
ENET: DECWRL::SWAN

CC: Joella Hornor-Paquette,
Ron Myrick MS01/C10

SUBJECT: WRL Legal Support Needs

Scope of Legal Work at WRL

WRL is a research laboratory conducting research in areas of VLSI design, packaging, cooling, CAD tools, operating systems, window systems, languages, networks, and other application software areas. Our work requires extensive outside contact, both with the academic community and with various suppliers, collaborators, and others.

Legal work in the recent past has included:

- Licensing of WRL developed experimental software for use outside of Digital. (Requires license procedure, disclaimers, etc.)
- Invention disclosures, patent searches, invention filing.
- Non disclosure agreements.
- Purchase and Development Contracts
- Network membership agreements - liability issues
- Visa and Immigration law.
- Trademark issues.
- Copyright notices.

Nature of Legal Support Needed

The business needs of WRL, as a research laboratory, are somewhat different than those of a strict product group. It is vital for our ability to attract and retain the best researchers and gain full cooperation from academic researchers that we as far as possible maintain an open research environment. It is very valuable for Digital for us to share some of our software and CAD tools with the research community. On the other hand, when WRL accepts proprietary information from suppliers, such as semiconductor vendors, our legal liabilities and the deep pockets of Digital are the same as if we were a product group.

We need a close partnership with our legal support. Legal needs to understand our business needs. Much of our legal work requires the lawyer working one-on-one with a researcher. Establishing the appropriate relationship of trust takes time.

WRL has, over the past year, begun a major research project (called BIPS) that has as a goal building extremely fast single chip processors with bipolar VLSI technology. This project requires breakthroughs at many levels of VLSI design and packaging. The commercial value of this project, if it is successful, is very high. As part of this project we must gain from VLSI vendors the detailed design rules for their fabrication processes. Our vendors have invested hundreds of millions of dollars in developing these processes, so they are quite sensitive to unauthorized disclosures.

In the bipolar semiconductor area, 2 of America's 4 possible vendors have dropped out of business in the the past two years. The majority of vendors are Japanese. Japanese companies have clearly the best available technology. These companies are especially sensitive to protecting their intellectual property. They are also motivated to negotiate as much disclosure on our side as they can. As a further complication, one important Japanese vendor is highly sensitive to the recent actions by the US Congress and US Government to "punish" a Japanese firm for utilizing US technology in equipment sold to the USSR. Thus, Digital [Bob Palmer] has signed a contract where we "indemnify" a Japanese corporation against breaches of US civil and espionage codes. All of this creates a very sensitive environment for negotiating contracts and non-disclosure agreements. It is very rare, that we can use standard boiler-plate agreements. We currently have more than 6 active non-disclosure relationships with VLSI vendors. These each pose significant potential liability problems for Digital. We have numerous other non-disclosure agreements that probably have lower potential liability.

As we progress further with the BIPs project, the legal issues will become more involved. We have already had "demands" and requests from vendors for our CAD technology. The prototype workstations built as part of the project will qualify under US regulations as "Super Computers" and be subject to export control and other restrictions. This may turn out to greatly complicate our goals of accessing the best technology which is outside the US. It may also impose restrictions that are very unfamiliar in a research environment. The commercial issues for Digital will be much more important as we demonstrate the viability and product potential of this research.

WRL, and other CRA research laboratories, can only be really effective if we fully participate in the research community. This means relatively open publishing and making our experimental software available for others to use and improve. We have perhaps half a dozen software packages which we make available outside of Digital in various ways. The circumstances of each differ. Even after the distribution process has been established, in some cases for several years, new legal questions arise.

WRL has operated Digital's primary mail and network gateway between Digital's ENET and the outside research community for more than 5 years. This is now moving beyond being primarily a convenience for Computer Science researchers to being an integral part of Digital's mode of business. On the order of 10,000 mail message per day pass through this gateway. We connect to most major networks. The organizational and legal aspects of these networks are constantly changing. While these networks are no longer primarily supported by the Federal government, they are not entirely private. Many of the networks have poorly defined restrictions on the kind of material that can be transmitted. The legal conditions for joining each network must be carefully reviewed. Frequently these not-for-profit organizations are not professionally run and negotiations can drag out for months. It is important for

Digital's business needs and to protect our liability that we maintain a very clean and well defined legal status with respect to our network connections.

The Network Systems Lab (NSL) is a new CRA group in Palo Alto that has been formed under WRL. Details of their specific legal needs can be obtained from NSL's director, David Crocker. This group will be working with much "public domain" software. Protecting our rights and liabilities will require great care. An important part of NSL's charter is to work in the "Open Systems" area. This involves extensive work with standards bodies and working with our business competitors. For example, NSL will provide facilities for testing the interoperability of network components from diverse vendors.

External Support for Patents

Not all of WRL's legal work needs to be done with an in-house lawyer. In the past two years or so, we have developed more than 12 invention disclosures. These require a responsive and organized internal review process. After internal review, it seems that patent applications are better handled by external legal support. Our patents cover a wide range of technical areas, no single individual can be expert across this range. We have found that appropriate selection of external lawyers has worked very well for patent applications. Also, invention disclosures tend to come in bunches. An internal legal group could easily get swamped part of the year and be idle at other times. An external approach for patents allows us to quickly match the support level to the load. More authority to deal directly with outside legal services for patent matters might save time for researchers and internal costs.

Acknowledgement for current legal support

In the past few months, since the loss of West Coast legal support, Jerry Lester and Barry Young have been providing support. Jerry Lester did some excellent work, on the phone and by FAX, under tight deadline conditions to rewrite a complicated agreement with a foreign semiconductor supplier. Barry Young has spent time trying to learn our needs and has provided support on numerous issues. Particularly during this past week, which he spent researching these issues in California, he was also able to make substantial progress in several areas which have been backlogged. We are grateful for this assistance.

Legal Support for WRL

WRL needs a Northern California based lawyer as the primary source of legal support. This individual needs to be expert in Intellectual Property Rights Law and have significant experience with development and other contracts. This person should have as their primary focus the support of WRL and SRC. They should attend our weekly staff meetings and be available to meet with WRL management and researchers on short notice.

While this person should handle the front-end of invention disclosures and provide

consulting on approaches for protecting new ideas, the actual development of patent applications should primarily be done through local, outside law firms.

It is vital that the person be locally based and have WRL and SRC as their first priority. It is in the nature of the research environment, that if responsive legal support is not available, legal decisions will be made by well meaning, but unqualified, individuals. As indicated above, we are grateful for the East Coast based support we have received, however our experience demonstrates that this is not sufficient. An East Coast based lawyer is not an acceptable approach to meeting the business needs of WRL and protecting Digital's rights and liabilities.

From: RDVAX::DELUCA 19-FEB-1990 15:24:26.57
To: CONNORS
CC: DELUCA
Subj: WAR STORIES

From: ASABET::ASABET::MRGATE::"A1::DUFOUR.CONNIE" 19-FEB-1990 11:38:16.07
To: RDVAX::DELUCA
CC: RDVAX::GANNON
Subj: Legal War Stories ***MEMO FROM RON SMART***

From: NAME: Connie Dufour @MLO
FUNC: Corp Mrktg/Bus Research
TEL: 223-6432

<DUFOUR.CONNIE AT A1 at EMASA2 at

MLO>

To: DELUCA @RDVAX @VMSMAIL
CC: GANNON @RDVAX @VMSMAIL

I'm guessing at the context, but my problem has been the instability in really good patent support of the caliber which can deal with intellectual property in the software domain, especially software support for development, sharing and application of knowledge by humans.

The first good person left for HP. The second Michael, also left. What's wrong?

Ron

From: JOVE::swan "Richard Swan" 24-JAN-1990 17:24:15.75
To: rdvax::deluca
CC:
Subj: NSL - Handling of Legal Issues

----- Forwarded Message

To: Sam Fuller <fuller@rdvax.enet>
From: Dave Crocker <dcrocker>
Cc: Richard Swan <swan>, Joella Hornor-Paquette <hornor>, Cheri Tatum <tatum>, Agnes Connors <connors@rdvax.enet>
Subject: Ill-Legal Behavior
Organization: DEC Network Systems Lab (UCO-4)
Phone: 415/688-6820; Fax: 415/321-6953
Date: Wed, 24 Jan 90 14:09:29 PST

Sam,

Richard tells me you are looking for war stories about dealing with Legal:

Very early in NSL's life, the possibility of the vendor interoperability testing function and lab surfaced. It immediately looked like it would have a side benefit of good PR, so that things like its name would be significant. I assumed that we would have to register, trademark, or whatever the name.

I contacted the then-local lawyer (Mike, who has since left the company) but got no feedback.

About 2 months ago, Beverly Bellows was introduced around here and I asked her for assistance. She took notes and promised to get back with me. 2 or 3 weeks later we (Joella or I) sent her a follow up note. We have never had any reply from her.

It took an afternoon visit at the Mill, by Joella, to get any useful guidance, which in turn required Cheri's pursuing the matter. That is, the process is being driven entirely from WRL/NSL and I seriously doubt that there is any continuing action item in the Corporate Law office, beyond their giving us the advice to start using the name (OpenLab) in order to establish name recognition.

Dave

----- End of Forwarded Message

% ==== Internet headers and postmarks (see DECWRL::GATEWAY.DOC)
% Received: by jove.pa.dec.com; id AA06129; Wed, 24 Jan 90 14:25:51 -0800
% Phone: 415 853-6627; Fax: 415 321 6953
% Organization: DEC Western Research Laboratory UCO-4
% Date: Wed, 24 Jan 90 14:25:49 PST
% From: swan

From: RDVAX::DELUCA 20-FEB-1990 08:41:21.82
To: CONNORS
CC: DELUCA
Subj: MORE WAR STORIES

From: DECSRC::TAYLOR "Bob Taylor" 19-Feb-90 1318 PST" 19-FEB-1990 16:23:23.84
To: rdvax::deluca
CC:
Subj: "war stories re legal dept" request

Cc: src::thacker, src::kaercher, src::hickman, src::taylor

Iris, this is in response to your request for some examples of experiences SRC has had in trying to work with the legal dept.
rwt

SRC common legal issues fall into these categories:

- 1) patent application support
- 2) intellectual property rights
- 3) other contracts
 - vendors
 - consultants
- 4) misc.
 - visa issues
 - tax law issues

Once we received a call from the outside consulting Palo Alto law firm we were using. This firm has done good work for us. The lawyer said: "I just want you to know that we won't be able to answer your questions anymore. I've just gotten word that everything is supposed to go through Barry Young back east." This was the first word SRC got of this. Legal should have contacted us and told us (Chuck Thacker) about the new process directly.

One problem with changing legal personnel is that it requires us to rework issues. Each lawyer wants to read and pass inspection on each contract that comes through the Center. Since law is not an exact science, there is the potential of differing opinions. Therefore, every new attorney has to be guided through the process and the background of problems that exist in the research world.

One legal working of an issue ought to be enough. Beverly Bellows went through the contract process for Sam Harbison, and did so effectively. Then it was necessary to repeat the whole process with Barry Young.

Each time a new legal person comes on board, it seems necessary to acquire new agreement that our general contract for individual consultants satisfies the law and protects the Company. It always passes, but lack of consistent support seems to make it necessary to review it repeatedly. This is unbelievably time consuming, and incredibly irritating.

On the other hand, Beverly Bellow's connections within the company have proven helpful to finding new solutions to visa and tax law problems.

On one occasion, SRC researchers were discussing ways to connect a large number of remote terminals to a central site. They observed that the outbound bandwidth would be large, but that

the inbound bandwidth would likely be small (i.e., easily handled by the telephone network). Noting that the outbound communication could be handled by microwave, but knowing that frequency spectrum allocation is tightly regulated by the FCC, the researchers considered the use of phased-array communications to steer transmissions to the remote site based on a mapping of Ethernet destination addresses to physical location. Since none of the individuals are experts in the field of phased-array radar, they requested a novelty search from the local firm that had (competently) handled their patent work in the past. They were told 'It will cost about \$300 to do the search, but that approval from corporate legal must be sought'. The approval was refused.

Novelty searches of the Dialog database are best done by an inventor and an attorney, sitting together -- the former is knowledgeable in the field, the latter is an expert in the use of the database and in patent law. This is difficult if the person doing the search is at Powdermill Road, and the inventor is in California.

After some complaints, the request was approved. The local firm was directed to spend an amount not to exceed \$300 to assist SRC in doing novelty searches. In disgust, this area of investigation has been dropped by SRC.

This is an example of an idea (possibly unworkable) that was quenched from the start. Unfortunately, it was not quenched by technical facts, but by the difficulty of working with the legal department.

end-----

=====
Received: from jumbo.pa.dec.com by src.pa.dec.com (5.54.5/4.7.34)
for rdvax::deluca; id AA19778; Mon, 19 Feb 90 13:23:06 PST
Received: by jumbo; id AA12927; Mon, 19 Feb 90 13:18:16 PST
Message-Id: <9002192118.AA12927@jumbo>
X-Folder-Carbon: Sent-90

Image - protect Digital's legal interests at all costs, rather than to work in partnership with other Digital managers to advance the interests of the business overall.

Style - hardball, confrontational
us vs. them

CRA not getting proper legal attention:

CRL lease - 4 1/2 months - cost developer \$200K

MAYA contract - 4 months

MIPS

NSL startup - contacted local lawyer - no feedback
contacted Beverly Bellows 3 months ago for help,
sent follow-up note - no answer

Novelty patent searches - request from SRC refused; appealed;
approved but outside counsel told not to
exceed \$300; SRC abandoned pursuit in disgust

Many personnel changes in last two years - unacceptable

CRA paying for 1 1/2 attorneys - getting 25% support

Needs:

- consistency (present pattern extremely time consuming)
- West Coast presence (minimum 1 week/month)
- dedication

From: RDVAX::MCCREDIE 6-FEB-1990 08:44:27.63
To: FULLER, DELUCA
CC:
Subj: ERP Problems with legal

From: RDVAX::CHAMPINE "GEORGE CHAMPINE 617-253-0144 AT MIT" 6-FEB
-1990 01
:29:00.94
To: MCCREDIE, FULLER, DELUCA
CC:
Subj: Per Sam's request for problems in legal and licensing

*hold for mtg w/ Myrick
copy this to Connors
2/27*

The following are problems that have been encountered in trying to write software licenses. The problems are a combination of legal process and licensing policy. This is a very short summary of the problems.

1. Ultrix source code for Athena

In 1987 and 1988 there was a strong desire on the part of Athena to move from Berkeley Unix to Ultrix. Digital would have derived significant benefit from this. We formed a team to try to get an agreement for a source code license that was acceptable to both Digital and MIT. MIT declined to sign the standard license because they felt that the security requirements could never be realistically met. After working on the problem for a year, Digital felt that there were insurmountable obstacles to doing a special agreement with MIT. We felt that this was the wrong answer and appealed to top management to reconsider the larger business issues. Management directed that the problem be solved, and (literally) 24 hours later we had the agreement.

2. MACH license

We started in August, 1989 to create the licenses necessary to allow Digital, OSF, and CMU to distribute the MACH code developed by CMU for the PMAX. Because the package is used for research, source code is generally required. The following problems were encountered.

1. The Digital restrictions on CMU prevented them from distributing MACH source code to anyone, including Digital employees. There would have been significant benefit to Digital by MACH distribution. CMU is baffled as to why Digital would do this.
2. OSF wanted to make the PMAX the premier delivery vehicle for MACH. The licensing encumbrances imposed by Digital on the Ultrix part of OSF/MACH prevented this.
3. At one point OSF was willing to fund MT. Xinu (a small third party software developer) to develop a release package for MACH/PMAX and support it. Given the licensing problems, this failed to happen.
4. The Ultrix part of MACH source for PMAX is encumbered by MIPSco code. This problem has been known for quite some time but MIPSco has never been approached with a proposed agreement.

We have been working on these problems for six months. There has been much activity but no agreements have been reached with any of the above organizations.

3. Ultrix license for MIT/LCS

For several years the Laboratory for Computer Science (LCS) at MIT has been trying to get a few device drivers from Ultrix in source code so that they

could carry on their research. The last time I was involved, Digital had taken the position that the risk in providing these modules to MIT is so great as to outweigh any possible benefit. As a consequence LCS has been using competitor workstations to an increasing extent because source code is readily available.

Of course MIT is baffled as to why Digital is so generous in supporting research with equipment, software, people, and cash, and then denies them the few code modules that they need to carry out the research.

4. General statement

In general, the Digital image as a capable research partner on campus is suffering, especially with those top colleges that we value most highly. At MIT, when a Digital lawyer walks into a meeting, the MIT people

automatically assume that there will be a one year slip in the schedule. There is a general feeling that Digital has become impossible to work with because of red tape problems similar to the ones described above.

I would be glad to discuss these problems in more detail and to recommend solutions.

From: RDVAX::FULLER "SAM FULLER, ML12-2" 26-JAN-1990 17:31:42.76
To: DELUCA
CC:
Subj: print and hold in Legal/Admin File

From: CRL::victor "Vic Vyssotsky" 25-JAN-1990 16:49:17.79
To: rdvax::fuller
CC:
Subj:

Sam,

You asked for comments from us about our dealings with the Digital legal organization.

On the one hand, all the Digital lawyers I've come in contact with are professional, energetic and quick thinking; which is great. On the other hand, the culture of the Digital legal department comes across as confrontational. The legal department seems to consider that its job is to protect Digital's legal interests at all costs, rather than to work in partnership with other Digital managers to advance the interests of the business overall. My impression is based on little evidence, but here are some vignettes.

When we were negotiating the lease for the premises CRL now occupies there were numerous minor issues to be resolved. In my opinion at the time, the Digital negotiating approach on these minor issues was so inflexible and so arrogant that on two occasions I said in our internal meetings "Please do not get my landlord mad; I'm going to have to live with him." The only response from our legal people was "Don't worry, he's not going to walk away from the deal." True. The Athenaeum group didn't walk away from the deal, but Dave Clem of the Athenaeum group got absolutely furious before the whole thing was over. He offered to replace his lawyer if we would replace ours; I told him that that wasn't in the cards (which it wasn't; the legal department had made it perfectly clear to me from the beginning that they had more important things to do than that lease, and that I was going to have to be satisfied with whatever legal support they could find to assign to it.) But we did arrange to put our real estate consultant into the loop to smooth things down and expedite matters. That helped a little, but not much; from the time the negotiation started until the lease was signed was four and a half months, for a perfectly straightforward commercial lease. Dave Clem blew up at me one day toward the end of this, and told me that Digital's delay and niggling had cost Athenaeum Group \$200,000 in cash flow that he badly needed; there wasn't a hell of a lot I could say, because so far as I could see, Clem had negotiated in good faith throughout, and we (Digital) had been playing hardball throughout. The result of all this is that our relationship with Athenaeum Group has been strained for much of the last two years; for example, they've been real tough with us on parking arrangements. We got no significant benefit out of our legal maneuvering, and what it cost us was that it got Dave Clem into a posture of "OK, you guys played hardball, and I know that game too."

You have seen a little of this same sort of thing, on a smaller and less painful scale, in the negotiations with MAYA recently. Doris Bennett is a great person to deal with when she's not wearing her 'us vs. them' hat, but you were in the room for a while one day when she and the lawyer for MAYA kept starting after each other. I know that's one sort of legal operating style, but it's not the only way, and I view that particular style as counterproductive when introduced into a negotiation where the objective is to reach an agreement from which both parties are intended to benefit. It's also not Doris Bennett's style as a person, but it seems to be the working style of Digital's legal department. The MAYA contract, as you know, is also another of the cases where the legal department is too heavily loaded with higher priority work to give full attention to it, and that hasn't helped Jim Morris' feelings about Digital.

I've seen the 'legal safety above all' view also in connection with paper

clearance. Our lawyers (with the exception of Michael Glenn) seem to take the point of view that if there's any gray area at all concerning whether something is proprietary, it shouldn't be published. I won't dwell on that, because you've been involved in the publication issue more than I have.

Instead, I'll cite a final anecdote. A friend of mine who's a lawyer for another organization told me that she hates to deal with Digital, because Digital plays hardball more than any other outfit she deals with. In particular, she told me that one male Digital lawyer persists in addressing her as "Little Girl." She says that of course she knows he's doing it to get her angry, and that she has enough sense to keep her cool, but that she considers such a gambit to be tasteless and unprofessional. I agree with her. I have apologized to her on behalf of Digital, but that doesn't fix the underlying situation.

I have been in the room during enough discussions with lawyers and between lawyers to know that most legal discussions are not confrontational, but rather are aimed at resolving issues in a mutually satisfactory way. Indeed, one of my fondest memories is of a former boss of Barry Young's (when Barry was on a previous job) doing a superb job of negotiating his way through a bristly meeting, and laying the groundwork for a subsequent agreement. I hope and expect that Barry has that same sort of skill; I worry about whether he will get to use it in Digital. It distresses me that so much of the Digital legal style seems to be confrontational. Perhaps that's part of what gets us into situations like the 'RISC Terminal' problem with MIPS.

--Vic

% ==== Internet headers and postmarks (see DECWRL::GATEWAY.DOC)
% Received: by easynet.crl.dec.com; id AA03527; Thu, 25 Jan 90 16:49:37 -0500
% Date: Thu, 25 Jan 90 16:50:21 EST
% From: victor
% Message-Id: <9001252150.AA10231@crlvav.crl.dec.com>

RECEIVED

MAR 7 1988

SAM FULLER

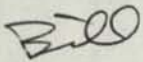
Sam,

Attached is the Non-Disclosure Agreement to allow Digital to review a document describing GE's proprietary Object Based Systems development environment, OMTool.

This Non-Disclosure was reviewed and approved by Bill White in Corporate Legal and GE has signed.

Assuming you see nothing amiss, please sign both originals and have Iris send them back to me.

Thank you,



Bill Zimmer

Copy
Mailed to Zimmer

3/9/88 ZPW

— ml



EXHIBIT C-2

PROPRIETARY INFORMATION DISCLOSURE FORM

In accordance with the Non Disclosure Agreement between DIGITAL and GE as set forth in the Multinational Business Agreement dated July 29, 1987, GE expects to disclose to DIGITAL a document entitled "OMTool: The Object Modeling Tool Requirement Document, Version 1.3," containing certain proprietary information relating to an Object Based Systems Software Development Environment for the purpose of a feasibility study investigating areas of interest. The only recipient of the information shall be:

NAME	DIVISION:	TITLE:
Ken King	Object Based Systems Group	Senior Engineer

Both DIGITAL and GE agree that the terms and conditions provided in the NON DISCLOSURE AGREEMENT (EXHIBIT C-1) of the Multinational Business Agreement shall govern the duties and obligations of both the disclosing and receiving parties.

In addition, both parties agree that the confidentiality obligations relating to the information described above shall cease 3 years from the date of disclosure.

AGREED

General Electric Company

By: *Adam Chen*

Title: Manager, Information Systems Lab.

Date: 3/3/88

AGREED

Digital Equipment Corporation

By: *Sam Furr*

Title: VP, Corp. Res. & Architec.

Date: March 8, 1988



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AGREED

General Electric Company

By: *Alan Chen*

Title: Manager, Information Systems Lab.

Date: 3/3/88

AGREED

Digital Equipment Corporation

By: *James F. ...*

Title: VP, Corp. Res. & Architec.

Date: March 8, 1988

digit

Courier Shuttle
to Claudia Trendl
@ HLO
2/10/88 AM

EXHIBIT C-2

PROPRIETARY INFORMATION DISCLOSURE FORM

In accordance with the Non Disclosure Agreement between DIGITAL and GE as set forth in the Multinational Business Agreement dated July 29, 1987, GE expects to disclose to DIGITAL certain proprietary information relating to: Model Based Reasoning and GENX Version 2 for the purpose of a feasibility study investigating areas of interest for joint research in AI at a meeting to be held on or about February 15, 1988 and during subsequent related discussions. The first recipients of the information include:

NAME:	DIVISION	TITLE:
Norma Abel	AI Technology Group	Group Manager
David Hartzband	AI Technology Group	Chief Scientist
Mitch Tseng	AI Systems Group	Group Manager
Stephen Polit	Intelligent Syst. Tech Gr.	
Jill Eastlake	AI Technology Group	Prod. Dev. Mgr
John Barnwell	Intelligent Syst. Tech Gr.	Principal S/W Eng.
Frank Lynch	Intelligent Syst. Tech Gr.	Adv.Dev. Systems Tools Manager
Marsha Hyek	Intelligent Syst. Tech Gr.	
Neil Pundit	AIAG	Group Eng. Manager
Bill Zimmer	GE Business Group	Eng. CAM
Roy Pannucci	GE Business Group	SAM, CR&D

Both DIGITAL and GE agree that the terms and conditions provided in the NON DISCLOSURE AGREEMENT (EXHIBIT C-1) of the Multinational Business Agreement shall govern the duties and obligations of both the disclosing and receiving parties.

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AGREED

General Electric Company

By: _____

Title: _____

Date: _____

AGREED

Digital Equipment Corporation

By: Samuel M. Fisher

Title: Vice President, Research

Date: February 9, 1988

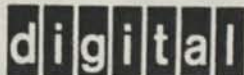


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Jill Eastlake	AI Technology Group	Prod. Dev. Mgr
John Barnwell	Intelligent Syst. Tech Gr.	Principal S/W Eng.
Frank Lynch	Intelligent Syst. Tech Gr.	Adv.Dev. Systems Tools Manager
Marsha Hyek	Intelligent Syst. Tech Gr.	
Neil Pundit	AIAG	Group Eng. Manager
Bill Zimmer	GE Business Group	Eng. CAM
Roy Pannucci	GE Business Group	SAM, CR&D

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AGREED

General Electric Company

By: _____

Title: _____

Date: _____

AGREED

Digital Equipment Corporation

By: Samuel W. Fulk

Title: Vice President, Research

Date: February 9, 1988



EXHIBIT C-2

PROPRIETARY INFORMATION DISCLOSURE FORM

In accordance with the Non Disclosure Agreement between DIGITAL and GE as set forth in the Multinational Business Agreement dated July 29, 1987, DIGITAL expects to disclose to GE certain proprietary information and architecture relating to the following topics: Domain Independent Configuration Environment, XCON/XSEL, Diagnostic System Shell, Knowledge Acquisition Systems, a Toolkit for OPS5, Knowledge Based System technologies, Vision of AI in Process Control for the purpose of a feasibility study investigating areas of interest for joint research in AI at a meeting to be held on or about February 15, 1988 and during subsequent related discussions. The first recipients of the information include:

NAME:	DIVISION:	TITLE:
Andy Crapo	GE CR&D	Mechanical Engineer
Peter Dietz	GE CR&D	Engineering & Bus. Information Manager
Dave Tong	GE CR&D	Electrical Engineer

Both DIGITAL and GE agree that the terms and conditions provided in the NON DISCLOSURE AGREEMENT (EXHIBIT C-1) of the Multinational Business Agreement shall govern the duties and obligations of both the disclosing and receiving parties.

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AGREED

General Electric Company

By: _____

Title: _____

Date: _____

AGREED

Digital Equipment Corporation

By: Samuel V. Furr

Title: Vice President, Research

Date: February 9, 1988



EXHIBIT C-2

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Dave Tong	GE CR&D	Electrical Engineer

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AGREED

General Electric Company

By: _____

Title: _____

Date: _____

AGREED

Digital Equipment Corporation

By: Samuel N. Furr

Title: Vice President, Research

Date: February 9, 1988

Sam,

Norma Abel has set up a meeting with General Electric to explore future topics for collaborative work in Artificial Intelligence. Bill White in Corporate Legal has suggested we reduce the number of DEC attendees to minimize the risk. He also suggests we limit the information to the people present.

Bill was clear these are suggestions, not requirements. I do not believe we can accomplish our goals of a dialogue to find other topics for joint efforts if we take these suggestions. The list of attendees appears right to me and if we limit the information to the people present it would be difficult to hold internal DEC follow-on discussions to decide what to do next. } ok

If ~~you agree~~, please sign the non-disclosures enclosed. If not, let me know and I will make any changes you think necessary.

yes

Thanks in Advance
Bill

Date: 17-DEC-1987 08:53
From: AITG::ABEL
To: RDVAX::ZIMMER,ABEL
Subj: FYI. I'll keep you posted and assume that you want to be included.

Background:

Sam Fuller is a corporate partner for GE Corporate Research and Development (CRD) in Schenectady. He has asked that we "get together" with their AI people and see if there is some mutual projects/interests that could lead to some collaborative work. This was initially the basis on which we heard about GEN-X. While following the GEN-X path we temporarily forgot about the technical interchange (not necessarily product related). Now that the GEN-X contract is in place, GE CRD is interested in picking up the threads of the technical interchange.

Proposal:

CRD people would like to have a meeting (most of a day) to talk about various projects that might be of joint interest. They already know something about some of Frank Lynch's projects as Frank is an old friend. They are willing to travel here in order to get a better sampling of the variety of work we are doing. They would like the meeting to occur in early January. They will, of course, also present their work to us in this same forum.

The goal of this meeting would be to see if there were possible mutual interests that would result in further meetings to get more detailed information to determine if there really is a possibility for callaboritive effort.

Question:

Are you interested in participating or having your organization participate (more than one person is fine)? Will you please respond on your interest and if there is some, I'll handle the logistics of setting up this first meeting.

/Norma

Date: 8-FEB-1988 12:47
From: POWDML::WHITE
To: RDVAX::ZIMMER,WITNES::LESTER,WHITE
Subj: GE NDAs

Bill

I have just now reviewed two Proprietary Information Disclosure Forms that would establish confidential relationships with GE under an umbrella agreement with GE identified as GE MNBA# 3908200. The first form relates to "Model Based Reasoning and GENX Version 2 wherein Digital employees are recipients of confidential information. The second form relates to "Domain Independent Configuration Environment, etc." wherein GE employees are recipients.

Regarding the first agreement, I would recommend that the number of Digital employees be confined to only those having a need to know GE's confidential information. Each employee becomes one more control point in terms of Digital maintaining the confidentiality which it has agreed to. Perhaps it may be appropriate to have more than one agreement, each of which would cover a select topic that would have a confined group of Digital employees that would need to know the particularly defined confidential information. I would also recommend that the language "The first recipients" be revised as follows: "The recipients of the information on behalf of Digital shall be limited to:"

Regarding the second agreement wherein GE employees are recipients, I would merely call your attention to section 2 of Exhibit C-1 which requires Digital to mark its written information as proprietary and confidential and to reduce all oral disclosures to writing within thirty days in order to secure the confidentiality obligation by GE. Please also note that the only information that GE has agreed to a confidential obligation under the above steps is that which has been designated in the Proprietary Information Disclosure Form which is in this instance the "Domain Independent Configuration Environment, etc."

Bill White

Date: 8-FEB-1988 14:03
From: RDVAX::ZIMMER "GE Business Group"
To: WITNES::WHITE
CC: ZIMMER,FILE
Subj: RE: GE NDA's

Bill,

I re-read Norma's note that set the stage for the meeting. It was sent to the senior managers within our AI organization, the purpose was a technical interchange that could lead to collaborative projects. Since we will not know what these projects are until we have the discussions I do not know how to limit the participants below the list Norma has invited.

Similarly, this is an exploratory meeting. We will have to have internal DEC follow-on discussions to decide whether any collaborative efforts would be reasonable. I do not see how we we can do this with just the participants from the original meeting.

I will be careful to comply with the requirement in Exhibit C-1 to reduce oral disclosures to writing within 30 days after disclosure. The slides used at the meeting will be marked confidential, when appropriate. I will send them to GE with a cover letter telling them this is the reduction to writing required for oral disclosures.

I will convey your concerns to Sam along with my recommendation to sign the agreement as negotiated in the GE MNBA.

Bill



EXHIBIT C-2

PROPRIETARY INFORMATION DISCLOSURE FORM

In accordance with the Non Disclosure Agreement between DIGITAL and GE as set forth in the Multinational Business Agreement dated July 29, 1987, GE expects to disclose to DIGITAL certain proprietary information relating to (1). Flat panel display technology) and (2). Art-to-part technology for the purpose of exploring the possibility of structuring a joint business relationship concerning either or both of the aforesaid technologies designated (1) and (2) at a meeting to be held on or about December 15, 1987 and during subsequent related discussions. The first recipients of the information include:

NAME:	DIVISION:	TITLE:
Peter Conklin	Terminals Business Unit	Technical Director
Al Johns	Video Engineering	Manager
Brian McLane	Display Eng. Int.Design	Supervisor
Roy Pannucci	GE Business Group	Strategic Acct. Mgr
Bob Sands	Display Eng. Buy-Out	
George Wright	Prod. Mktg and Prod. Mgmt	Group Manager
Bill Zimmer	GE Business Group	Eng. Corp. Acct. Mgr

Both DIGITAL and GE agree that the terms and conditions provided in the NON DISCLOSURE AGREEMENT (EXHIBIT C-1) of the Multinational Business Agreement shall govern the duties and obligations of both the disclosing and receiving parties.

In addition, both parties agree that the confidentiality obligations relating to the information described above shall cease 18 months from the date of disclosure.

AGREED

General Electric Company

By:

Title:

Date:

AGREED

Digital Equipment Corporation

By:

Title:

Date:

Samuel N. Furr

V.P. RESEARCH

December 10, 1987

30 Nov.

Sam,

The attached agreement provides for Digital to receive information from CCL of Spokane, Wash for the purposes of evaluating a new logic they have developed which they claim can provide ECL speed at 6-10 times less power with 2-3 times fewer transistors using standard silicon bipolar processes. Broad preliminary review across DEC (HRS, MSB, SCO, SRC) of what CCL claims to have recommended going forward with getting this next level of detail. Important pts of this agreement:

- ① 2 year term -- for which DEC holds CCL material in confidence
- ② Disclosure to DEC initially limited to Chuck Thacker. Upon Chuck's recommendation involve others if appropriate. If not, send materials back to CCL and confer with Chuck.
- ③ Limit term for disclosures to occur from 1 Dec - 1 March (don't stretch this thing out)

Upon your signature of both copies, pls return to me and I'll follow through.

Scott
Gordon

file:
legal
non-disclosure

NON-DISCLOSURE AGREEMENT

This Agreement is made by and between DIGITAL EQUIPMENT CORPORATION, 146 Main Street, Maynard, Massachusetts 01754 (hereinafter "DIGITAL") and COMPUTER CIRCUIT LABORATORIES, West 601 Main Avenue, Suite 305, Spokane, Washington 99201 (hereinafter "DISCLOSER").

WHEREAS, DISCLOSER wishes to disclose to DIGITAL during the term of this Agreement certain information related to a new circuit configuration for a low voltage swing VLSI digital logic (hereinafter "INFORMATION"); and

WHEREAS, DIGITAL wishes to receive this INFORMATION for the purpose of assessing the potential for a future business relationship with DISCLOSER;

NOW THEREFORE, the parties agree as follows:

A. CONFIDENTIALITY

1. For a period of two (2) years from the effective date of this agreement, DIGITAL will hold in confidence INFORMATION it receives from DISCLOSER and will make no use of such INFORMATION except for the purposes expressly stated herein, provided:
 - a. INFORMATION is clearly marked confidential or proprietary; and
 - b. if orally disclosed, INFORMATION is summarized in writing and marked confidential or proprietary within sixty (60) days thereafter; and
 - c. all tangible materials provided to DIGITAL from DISCLOSER are sent to:

Charles P. Thacker
Digital Equipment Corporation
130 Lytton Avenue
Palo Alto, California 94301-1047.
2. DIGITAL shall use the same degree of care to avoid disclosure or misuse of INFORMATION so marked and so disclosed as DIGITAL employs with respect to its own confidential information of like importance.
3. Information shall not be deemed confidential and DIGITAL shall have no obligation with respect to any such information which:
 - a. is already known to DIGITAL; or
 - b. is in the public domain at the time of disclosure or becomes publicly known through no wrongful act or failure to act of DIGITAL; or

- c. is rightfully received from a third party who had a lawful right to disclose it to DIGITAL; or
 - d. is independently developed by DIGITAL without breach of this Agreement provided that the person or persons developing same have not had access to the INFORMATION; or
 - e. is approved for release without confidentiality restrictions by written authorization of DISCLOSER; or
 - f. is disclosed pursuant to the requirement or order of a governmental agency; or
 - g. is furnished to a third party by DISCLOSER without a similar confidentiality restriction on the third party.
4. DIGITAL shall not be liable for:
- a) inadvertent disclosure or misuse of INFORMATION provided (i) DIGITAL uses the level of care expressed above in safeguarding the INFORMATION, and (ii) upon discovery of the inadvertent disclosure or misuse of such INFORMATION, DIGITAL takes reasonable steps to prevent any further inadvertent disclosure or misuse, or
 - b) unauthorized disclosure or misuse of such INFORMATION by persons who are or who have been in its employ, unless it fails to safeguard the INFORMATION with the level of care expressed above.
5. All written data delivered by DISCLOSER to DIGITAL pursuant to this Agreement shall be and shall remain the property of DISCLOSER, and the written data, and all but one archival copy thereof, shall be promptly returned to DISCLOSER upon written request, or destroyed at DISCLOSER's option.
6. Both parties agree not to disclose the existence of this Agreement, nor refer to the other party with respect to the subject matter of this Agreement in connection with any product, promotion or publication without the prior written approval of the other party.
7. DISCLOSER shall not disclose to DIGITAL any third party's proprietary or confidential information which is in DISCLOSER's possession.

B. TERM AND TERMINATION

1. The term during which disclosures may be made under this Agreement shall commence the effective date of this Agreement and shall expire three (3) months thereafter unless sooner terminated by either party upon ten (10) days prior written notice, or unless extended by the parties pursuant to a written

notice signed by a duly authorized representative of each party.

2. This Agreement shall be terminable without cause by either party upon thirty (30) days advance written notice given to the other party provided, however, that obligations under Section A incurred during the term of this Agreement, shall survive termination or expiration hereof.
3. Upon termination or expiration of this Agreement, DIGITAL shall cease use of INFORMATION, and shall destroy or return the INFORMATION, including any copies thereof.

C. GENERAL

1. It is understood by both parties that DIGITAL has performed substantial independent development relating to digital computer technology and associated products, and that DIGITAL acquires and develops technology and that existing or future DIGITAL products may contain ideas or concepts similar or identical to those in DISCLOSER'S INFORMATION. This Agreement and any discussions hereunder shall not limit DIGITAL'S development or marketing of products or systems involving technology or ideas of a similar nature to that disclosed, nor will this Agreement prevent DIGITAL from undertaking similar efforts or discussions with third parties, including competitors of DISCLOSER, provided this Agreement is not breached.
2. Nothing contained in this Agreement shall be construed as granting or conferring any rights, other than the usage rights outlined herein, by license or otherwise, expressly or impliedly for any invention, discovery or improvement made, conceived, or acquired prior to or after the date of this Agreement.
3. This Agreement shall be governed by the laws and regulations of the Commonwealth of Massachusetts.

IN WITNESS WHEREOF, the parties hereto agree that the effective date of this Agreement shall be December 1, 1987.

DIGITAL EQUIPMENT CORPORATION

COMPUTER CIRCUIT LABORATORIES

By: Samuel H. Fuller
Duly Authorized Signature

By: W. F. McElroy
Duly Authorized Signature

Name Samuel H. Fuller
(Typed)

Name Samuel H. Fuller
(Typed)

Title: Vice President, Research

Title: Vice President, Research

Date: 12/8/87

Date: 11-25-87

I n t e r o f f i c e M e m o r a n d u m

To: see "TO" DISTRIBUTION

Memo: 5327418338MIL36
Date: Wed 5 Nov 1986 3:42 PM EST
From: RON REILING
Dept: LAW
Tel: 223-2991
Adr: MSO/C5

cc: see "CC" DISTRIBUTION

Subject: John McDermott Non-disclosure Agreement

This is to inform you that John McDermott has now signed a Non-disclosure Agreement which protects Digital's Confidential and Proprietary Information. We can now move forward in utilizing his services in defining our strategies with Digital's valuable Confidential Information adequately protected. Upon completion of that task, we will enter into a Consultant Agreement with John.

RTR/fd

"TO" DISTRIBUTION:

NORMA ABEL
DENNIS O'CONNOR

BILL KANIA
NEIL PUNDIT

"CC" DISTRIBUTION:

DON BUSIEK
SAM FULLER
BILL HANSON
JERRY LESTER

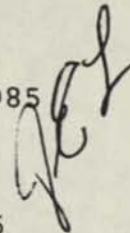
BILL COCHRAN
DAVE GRAINGER
BILL JOHNSON
JOHN MUCCI

d	i	g	i	t	a	l
---	---	---	---	---	---	---

I N T E R O F F I C E M E M O R A N D U M

TO: Sam Fuller
CC: Jack McCredie

DATE: September 5, 1985
FROM: Jerry Lester
DEPT: Law
EXT: 223-6571
LOC/MAIL STOP: MSO/C5



SUBJ: Brown University
Project Quattro Agreement

Enclosed for your review and signature are duplicate original copies of the subject Agreement, which address the rights and obligations of the parties in conducting research in the design of an integrated system of computers in a highly interactive, graphical environment.

Jack McCredie has reviewed and approved the Agreement.

Under the Agreement, Digital shall pay the University \$250,000; shall donate computer equipments and software licenses valued at \$750,000 MLP; and shall provide free installation and maintenance services during the term of the Agreement.

Digital shall receive a non-exclusive, royalty-free and worldwide right to use all Project Quattro technology.

If the Agreement meets with your approval, please initial and date the correction appearing in Clause 2.3 on page 2, and sign both copies of the Agreement on page 12. Upon signature, please return both copies to me for further disposition.

RISK ANALYSIS

The hardware and software products provided to the University are under an "as is" warranty, and Digital's exposure to liability in damages is limited to actual direct damages proximately caused by a breach of the Agreement. Indirect and consequential damages are expressly excluded.

No confidential information may be disclosed or received under the Agreement.

In view of the above, no undue risk to Digital is foreseen, provided that the University takes affirmative steps (as expressly required in the Agreement) to ensure that all rights in Project Technology are vested in the University. It is strongly suggested that periodic inquiries be made to the University regarding the execution of documents of assignment by all research contributors.

JL/lg
Enclosures

PROJECT QUATTRO

RESEARCH AND DEVELOPMENT AGREEMENT

This Agreement has been entered into as of the first day of June, 1985, by and between Brown University, a corporation duly organized and existing under the laws of the State of Rhode Island and having principal offices located at 164 Angell Street, Providence, Rhode Island, 02912 ("UNIVERSITY"), and Digital Equipment Corporation, a corporation duly organized and existing under the laws of the Commonwealth of Massachusetts, and having a place of business at 146 Main Street, Maynard, Massachusetts 01754 ("DIGITAL").

ARTICLE 1 - RECITALS

1.1 In order to promote the principal objectives of educational computing by providing students with a more substantive educational process, and by preparing students for the effective use of computers in their future professional work, specifically in the use of networked distributed workstations, the UNIVERSITY desires to conduct research and experimentation in an effort to establish the hardware and software design parameters for an integrated system of interconnected computers in a highly interactive, graphical environment (hereinafter "PROJECT QUATTRO"), and to publish the results of such research and experimentation in scientific journals and publications.

1.2 DIGITAL desires to support the PROJECT QUATTRO in consideration of a non-exclusive and worldwide license in technology conceived, created, or developed as a result of the research and experimentation conducted as part of PROJECT QUATTRO.

1.3 UNIVERSITY desires to grant DIGITAL a non-exclusive and worldwide license in such PROJECT QUATTRO technology in consideration of DIGITAL's donation of certain specified equipments, non-exclusive licenses to certain specified computer software programs, and certain specified services for purposes in pursuance of the research and experimentation conducted within the scope of PROJECT QUATTRO, subject to the terms and conditions expressed hereinbelow.

NOW, THEREFORE, in consideration of the mutual covenants hereinafter set forth, DIGITAL and UNIVERSITY agree as follows:

ARTICLE 2 - DEFINITIONS

As used in this Agreement, the following terms shall have the following respective meanings:

2.1 UNIVERSITY and DIGITAL are hereafter occasionally referred to as "party" in singular or plural usage as indicated by the context.

PROJECT DESCRIPTION shall mean a description of the research and experimentation to be conducted and the objectives sought to be achieved by UNIVERSITY in PROJECT QUATTRO, as set forth in UNIVERSITY's proposal to DIGITAL dated December 11, 1984, as amended on May 29, 1985, and attached as Exhibit A of this Agreement.

2.3 DIGITAL PROPRIETARY INFORMATION shall mean DIGITAL's computer software programs only in machine executable object code form as identified in Exhibit ^{PC} to this Agreement, and all other DIGITAL proprietary information which is disclosed to UNIVERSITY under this Agreement, and which is descriptive of DIGITAL's hardware and software computer products including related technical experience, know-how, show-how, and documentation. DIGITAL PROPRIETARY INFORMATION may include but shall not be limited to all whole or partial copies and derivatives of the foregoing occurring in any form including application and user manuals, system and program manuals, operating procedures, design specifications, test and diagnostic information, software programs in any form including but not limited to machine executable object code recorded on magnetic media or in printed form, drawings, logic circuit schematics, parts and wiring lists, logic flow diagrams, and maintenance, repair, manufacturing and servicing documentation. JHR

2.4 PROJECT TECHNOLOGY shall include within the scope of its meaning technology occurring in any form, including both object and source code of any computer software forms, wherein such technology is wholly conceived, created or developed as a result of research and experimentation conducted as part of the Software Development Environments, the Networked Laboratory Experiment Server, the Campus-Wide Message Service, and the Graphics Based Electronic Books research efforts comprising the PROJECT QUATTRO. PROJECT TECHNOLOGY shall not include DIGITAL computer equipments, DIGITAL computer software programs, or DIGITAL PROPRIETARY INFORMATION donated, licensed or otherwise made available to UNIVERSITY under this Agreement.

2.5 TERM shall mean the term of this Agreement commencing on the effective date first above written and expiring on July 1, 1986, unless extended in a writing signed by duly authorized representatives of each party to this Agreement.

2.6 A reference to an Article or to a Clause in this Agreement shall be deemed to include all Clauses depending therefrom.

ARTICLE 3 - TITLE RIGHTS, LICENSE GRANTS

3.1 DIGITAL shall assign to UNIVERSITY title to the computer equipments identified and listed in Exhibit B to this Agreement at no cost to UNIVERSITY. Such equipments shall be delivered to UNIVERSITY at DIGITAL's manufacturing plant dock in New England,

In the case of UNIVERSITY:

Professor Andries Van Dam
Department Of Computer Science
Gould Laboratory
Brown University
151 Thayer Street
Providence, Rhode Island 02912

ARTICLE 15 - PUBLICATIONS

15.1 Both UNIVERSITY and DIGITAL shall have the right to independently make public announcements and issue news releases with regard to PROJECT QUATTRO, provided that each party shall in good faith use best efforts to coordinate and consult with the other prior to such public announcements.

15.2 Each party shall have the right to publish PROJECT TECHNOLOGY under its own copyright notices.

15.3 Neither party shall use the name, logo or other identification of the other party in connection with any product, promotion or publication without the prior written consent of such other party.

ARTICLE 16 - GOVERNING LAW

16.1 The laws of the Commonwealth of Massachusetts shall govern with respect to this Agreement and any questions which may arise under this Agreement.

ARTICLE 17 - INTEGRATION

17.1 This Agreement sets forth the entire and exclusive agreement and understanding of the parties relating to the subject matter contained herein, and merges all prior discussions. Neither party shall be bound by any definition, condition, warranty or representation except as expressly set forth in this Agreement, or as subsequently set forth in a writing signed by duly authorized representatives of each party.

IN WITNESS WHEREOF, the parties hereto have as of the effective date first above written duly executed this Agreement, including Exhibits A, B and C which are incorporated herein and made a part hereof, in duplicate by their respective duly authorized representatives.

BROWN UNIVERSITY

DIGITAL EQUIPMENT CORPORATION

By: *T. W. Wundelich*

By: *Samuel W. Fuller*

Title: *ASSOCIATE DEAN OF RESEARCH*

Title: Vice President
Research and Architecture

d i g i t a l

I N T E R O F F I C E M E M O R A N D U M

TO: Sam Fuller

DATE: July 11, 1985
FROM: Jerry Lester
DEPT: Law
EXT: 223-6571
LOC/MAIL STOP: MSO/C5

SUBJ: Gould Inc. Non-Disclosure Agreement

Enclosed are duplicate original copies of the subject Agreement, which have been revised to limit the scope of the Agreement to the exchange and evaluation of confidential information.

If the parties later decide that a joint venture may be to their benefit, a joint R&D agreement shall be prepared.

Please be advised that the procedures which Gould requires for the exchange of confidential information are very strict. Any confidential information which is first disclosed orally shall not be held in confidence. All confidential disclosures must be preceded by a writing which is marked "DIGITAL CONFIDENTIAL AND PROPRIETARY", and which fully describes the intended disclosure. Thus, all oral disclosures must remain within the four corners of a prior written document.

Further, all confidential information exchanged under the Agreement may be received only by those employees identified in Paragraph 5.

Prior to signing the Agreement please enter at the top of page 1 of each copy an effective date predating any discussions under the Agreement.

After signature by each party on page 4, please return one original signed copy to the Law Office for safekeeping.

RISK ANALYSIS

Provided that all of Digital's confidential disclosures under the Agreement are preceded by the delivery to Gould of a written document, and the cover and each page of the written document having confidential information is marked with the legend "DIGITAL EQUIPMENT CORPORATION CONFIDENTIAL AND PROPRIETARY", no undue business risk to Digital is foreseen.

Liability in damages is narrowly limited to direct damages caused by a breach, and indirect and consequential damages have been expressly excluded.

JL/lg
Enclosures

GOULD INC.
10 GOULD CENTER
ROLLING MEADOWS, ILLINOIS 60008
(312) 640-4066

RECEIVED

JUN 24 1985

SAM FULLER

*Copy sent
Jerry Lester*

DR. JOSEPH E. ROWE
VICE CHAIRMAN AND
CHIEF TECHNICAL OFFICER

June 20, 1985

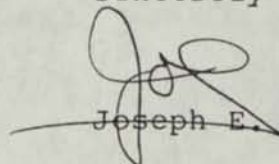
Mr. Sam Fuller,
Vice President,
Research and Architecture
Digital Equipment Corporation
146 Main Street
Maynard, MA 01754

Dear Sam,

I enclose a copy of the standard non-disclosure agreement covering proprietary data which we execute before detailed discussions with other companies. Please have your counsel review it and if acceptable we will plan on having all members of both teams sign the agreement at the first meeting of each group.

If there are any questions, please let me know.

Sincerely yours,


Joseph E. Rowe

JER/a
enclosure

NONDISCLOSURE AGREEMENT

PROPRIETARY DATA

Effective _____, 19____,

(hereinafter referred to as "Company"),

and

GOULD INC., _____

(hereinafter referred to as "Gould"),

have initiated a coordinated exchange of information involving a

_____ Program.

Accordingly, it is proposed that the following agreement be entered into between the two companies to cover all transmittals of proprietary data in connection with the program (or any subsequent programs or contracts resulting from the program) by Company to Gould and by Gould to Company.

1. Each party, to the extent of its right to do so, may submit to the other party proprietary data at times and of kinds and in forms which in the judgment of the party originating the data are appropriate to fulfillment of the obligations assumed by that party under its respective portion of the aforesaid program. This agreement shall not be construed as itself creating any obligations on either party to furnish proprietary data to the other.

2. Any proprietary data of Company which is submitted to Gould and any proprietary data of Gould which is submitted to Company under this agreement, which data is designated as proprietary to the submitting party by an appropriate stamp, legend or other notice in writing, shall be subject to the provisions as to disclosure and use hereinafter set forth. All such data which is accepted by the recipient party shall, for a period of five (5) years from the date of transmittal of each item of data covered by this provision,

- (i) be used, duplicated and disclosed by the recipient party solely for purposes of performance of its portion of these joint activities;
- (ii) not be used, duplicated or disclosed for purposes of manufacture or procurement of the equipment to which the data pertains;

- (iii) be disclosed only to personnel of the recipient party and of the United States Government with appropriate restrictive legends;
- (iv) if reproduced in whole or in part, carry a proprietary notice similar to that which was submitted to the recipient party; and
- (v) be released if in response to a lawful order of a court of competent jurisdiction wherein either party is served with a subpoena requiring that data must be delivered to the court.

3. The recipient party shall have no obligations as to any proprietary data which:

- (i) is already known or was independently developed by the recipient party, prior to receipt of the proprietary data, or
- (ii) is or becomes publicly known through no wrongful act of the recipient party, or
- (iii) is rightfully received from a third party without breach of this agreement, or
- (iv) is furnished to the United States Government or other third party by the submitting party without similar restrictions regarding use and disclosure, or

- (v) is approved for release or use by written authorization of the submitting party, or
- (vi) is not submitted in written (or other tangible, retainable) form.

4. The recipient party shall not be liable for inadvertent, accidental or mistaken disclosure or use by its employees of proprietary data obtained under this agreement, provided that:

- (i) the recipient party shall use the same degree of care as used to protect its own proprietary data of like importance, and
- (ii) upon discovery of such disclosure or use, the recipient party shall endeavor to prevent further disclosure or use.

5. With respect to any exchange of proprietary data which may occur as a result of this Agreement, it is expressly understood and agreed that the below listed employees shall, on behalf of the respective parties, be the sole and exclusive individuals authorized to receive and/or transmit proprietary data under this Agreement:

Company

Gould

6. As regards the individuals identified in Paragraph 5 above, each party shall have the right and power to redesignate such persons within their organizations as are authorized to receive and/or transmit proprietary data exchanged under this Agreement. Any such redesignations which are made by either party shall be effected by rendering written notice of such change to the other party.

7. Nothing contained in this Agreement shall be construed as granting or conferring any rights by license or otherwise, expressly or impliedly, for any invention or discovery, any patent covering such invention or discovery, or any trade secret or proprietary technical information, except as provided herein.

8. Any data not designated as proprietary in accordance with Paragraph 2 shall not, unless otherwise specifically agreed upon in writing by the recipient party, be deemed to be proprietary or submitted in confidence and shall be acquired by the recipient party free from any restrictions of use or disclosure (other than a claim for patent infringement).

9. This Agreement, and all rights and obligations established hereby except those specified in Paragraph 10, may be terminated by either party on sixty (60) days written notice to the other. Unless thus earlier terminated, termination will occur upon the first of the following events:

- (i) completion or termination of these joint activities by either party,
- (ii) the expiration of five years from the effective date of this Agreement.

10. Termination of this Agreement shall not relieve the recipient party of the obligations imposed by Paragraph 2 hereof with respect to proprietary data exchanged prior to the effective date of the termination; those obligations shall continue for the period applicable to each item of proprietary data as specified in said paragraph.

11. It is understood and agreed that nothing in this Agreement shall operate to dilute or diminish any obligations, responsibilities, or rights which either party may have under any United States Government contract.

ACCEPTED:

COMPANY

GOULD

By: _____

By: _____

Title: _____

Title: _____

Date: _____

Date: _____

d i g i t a l

JUL 17 1985

SAM FULLER

INTEROFFICE MEMORANDUM

TO: Sam Fuller

DATE: July 17, 1985
FROM: Jerry Lester
DEPT: Law
EXT: 223-6571
LOC/MAIL STOP: MSO/C5

SUBJ: General Electric Company
Non-Disclosure Agreement

Enclosed for your review and signature are two copies of the subject Agreement, which accommodates confidential discussions between GE and WRL relating to the design specifications and design rules for 1.25 micron double level metal semiconductor chips. The Agreement is a revision of an earlier agreement provided by GE, but still includes a rather strict control of confidential disclosures.

Under the Agreement, all confidential disclosures must be set forth in a writing which is clearly labeled as the confidential and proprietary information of the disclosing party. Oral disclosures which have not been preceded by the delivery of such a writing shall not be held in confidence.

Liability for damages due to a breach has been narrowly limited to actual direct damages proximately caused by the breach. Consequential damages are expressly excluded. Special damages are limited to investment costs.

If the Agreement meets with your approval, please sign both copies on page 2 and return each copy to me. I shall send the copy requiring a GE signature back to Norm Jouppi, and shall keep the fully signed copy in our Law Office safe.

RISK ANALYSIS

No undue risk to Digital is foreseen provided that the following steps are followed:

1. Digital should limit its oral disclosures to information described in a written document which is provided to GE at the time of disclosure, and which is properly labeled "DIGITAL EQUIPMENT CORPORATION CONFIDENTIAL AND PROPRIETARY INFORMATION" on the outer cover and each page having confidential Digital information;
2. Confidential documents should be exchanged only under cover memorandums clearly identifying the document and stating that the documents are being provided pursuant to the terms and conditions of the non-disclosure agreement; and
3. Digital should not receive any confidential disclosures from GE which are not preceded by the delivery of a counterpart GE document which is properly labeled as being confidential to GE.

JL/lg
Enclosures

NON-DISCLOSURE AGREEMENT

This Agreement, effective as of the date of the last signature hereto, is by and between THE GENERAL ELECTRIC COMPANY, having a place of business referred to as the CUSTOM INTEGRATED CIRCUIT DEPARTMENT with offices at One Micron Drive, Research Triangle Park, North Carolina, and DIGITAL EQUIPMENT CORPORATION, having a place of business referred to as the WESTERN RESEARCH LAB with offices at 100 Hamilton, Palo Alto, California 94301.

1. The parties contemplate the transfer of certain proprietary information related to GENERAL ELECTRIC COMPANY's 1.25 micron chip double level metal process physical and electrical design rules, and DIGITAL EQUIPMENT CORPORATION's design specifications for integrated circuits.
2. The party transmitting the proprietary information shall make it available to the receiving party in written or other tangible form, clearly labeled or otherwise suitably marked to identify it as the proprietary information of the transmitting party.
3. Disclosure Term: The term during which proprietary information may be disclosed under this Agreement shall commence on the date of the last signature of a party to this Agreement, and shall expire three (3) years thereafter.
4. The receiving party agrees to safeguard and hold in confidence the transferred proprietary information, and to use reasonable efforts consistent with those used in the protection of its own proprietary information to prevent its disclosure to third parties, except that the receiving party shall not be obligated hereunder in respect to any information which:
 - a. is already known to the receiving party at the time of its receipt from the transmitting party as evidenced by a corroborated writing or other equally conclusive evidence; or
 - b. is or becomes publicly available as evidenced by a printed publication or other equally conclusive evidence, without fault of the receiving party; or
 - c. is made available to a third party by the transmitting party without restriction on disclosure; or
 - d. is rightfully obtained by the receiving party from a third party without restriction on disclosure; or
 - e. is developed by the receiving party independent of and without reference to proprietary information received from the transmitting party under this Agreement; or
 - f. is disclosed with the written consent of the transmitting party; or

- g. is disclosed after five (5) years following the disclosure term as defined in Clause 3 above.
5. The liability of each party under this Agreement to the other shall be limited to actual direct damages proximately caused by a breach of this Agreement. Neither party shall be liable for incidental, contingent, consequential or exemplary damages under this Agreement, or for special damages other than investment costs in time, money, and materials used to create proprietary information disclosed under this Agreement.
 6. This Agreement constitutes the entire understanding between the parties concerning the treatment of proprietary information to which this Agreement relates, and supersedes all previous understandings, agreements, communications and representations between the parties respecting the subject matter hereof. No modification of this Agreement shall be binding upon either party unless embodied in a writing signed by both parties.

In witness of the foregoing, the parties hereto have caused this Agreement to be signed below by their authorized representatives.

GENERAL ELECTRIC COMPANY

DIGITAL EQUIPMENT CORPORATION

BY: _____
SIGNATURE

BY: Samuel W. Fuller 7/23/85
SIGNATURE

NAME: STEPHEN W. MICHAEL

NAME: Sam Fuller

TITLE: GENERAL MANAGER - CTD

TITLE: Vice President Research and Architecture

SIGNATURE DATE: June 10, 1985

SIGNATURE DATE: _____

f: chuno

NON-DISCLOSURE AGREEMENT
BETWEEN
FAIRCHILD CAMERA AND INSTRUMENT CORPORATION
AND
DIGITAL EQUIPMENT CORPORATION

Fairchild Camera and Instrument Corporation ("Fairchild") understands that Digital Equipment Corporation ("Digital") wishes to receive, and Fairchild plans to furnish certain Fairchild proprietary information in the field of Fairchild's 32 bit microprocessor system designated as the CLIPPER™. Specifically, the following areas of the CLIPPER system will be discussed: (1) the CLIPPER bus structure; (2) the dual bus-dual cache architecture; (3) the single chip cache/MMU combination; (4) the pipelined CPU with on-board floating point unit; (5) the implementation of virtual memory; (6) the instruction set; (7) the CLIPPER module; (8) overall system performance. These disclosures will be made solely for the purpose of evaluating the applicability of the CLIPPER system for incorporation into the Digital product family and no other use of this information may be made by Digital.

In consideration of Digital's receiving such information, Digital agrees, by signature of one of its officers below, to use such information only for the above purpose unless otherwise hereafter agreed to in writing by Fairchild, and to use the same standard of care as Digital uses to protect its own information of like importance to maintain such Fairchild information in confidence and not disclose the same to others. This commitment shall terminate on July 31, 1985, and shall impose no obligations upon Digital with respect to any portion of the received information which (i) is now, or which hereafter, through no act or failure to act on Digital's part, becomes generally known or available to others, (ii) is known to Digital at the time of receipt from Fairchild; (iii) is hereafter furnished to others by Fairchild without restriction on disclosure; (iv) is hereafter furnished to Digital by a third party as a matter of right and without restriction on disclosure; or (v) is developed by Digital independent of information received under this Agreement.

Fairchild acknowledges that Digital has and is developing 32 bit microprocessor systems having dual bus - dual cache architectures, single chip cache/MMU combinations, pipelined CPUs with on-board floating point units, and virtual memories.

Neither party warrants or represents that any products shall be ordered, developed, manufactured, or marketed.

Digital's liability in damages to Fairchild under this Agreement shall be limited to actual direct damages proximately caused by

Digital's breach. In no event shall Digital be liable for any indirect or consequential damages.

IN WITNESS WHEREOF, the parties have caused the signatures of their duly authorized representatives to be affixed to duplicate originals of this Agreement.

FAIRCHILD CAMERA AND
INSTRUMENT CORPORATION

DIGITAL EQUIPMENT CORPORATON

BY: A. J. Leng

BY: Samuel H. Fuller

Vice President
TITLE: Research and Engineering

TITLE: Vice President, Research
and Architecture

DATE: August 3, 1984

DATE: 30 July 1984

Digital Equipment Corporation
 1400 Terra Bella Avenue
 Mountain View, CA 94043
 Attn: Mr. Tony Boglin
 W.C. Materials Manager

Date 9/26/84

PROPRIETARY RIGHTS & NON-DISCLOSURE AGREEMENT

1. Pioneer Magnetics, Inc. ("PMI") of 1745 Berkeley Street, Santa Monica, California, 90404, considers the specifications for the power supply for the Titan project (collectively, the "Information") submitted to the undersigned and appropriately marked as "confidential" or with the words to be confidential and proprietary to PMI. Reproduction of the information for a period of two (2) years from the date of this Agreement by the undersigned, its directors, officers, agents or employees (collectively, the "Undersigned") or any other third party or its disclosure to any other third party is prohibited.

2. The Undersigned recognizes the proprietary rights of PMI in and to the information and the confidential nature of the information and for a period of five (5) years from the date of this Agreement agrees to take reasonable precautions to safeguard and treat the information as confidential as it would its own proprietary information. The Undersigned shall not be liable for inadvertent disclosure or use of the Information provided that (a) it uses the same degree of care in safeguarding such Proprietary Information as it uses for own Proprietary Information of like importance and (b) upon discovery of such inadvertent disclosure or use of such Proprietary Information, it shall endeavor to prevent any further inadvertent disclosure or use.

3. The Undersigned further agrees that it will not make use of, either directly or indirectly, any of the information which it receives or has received from PMI, other than for the purpose for which such information has been disclosed, except with the specific prior written authorization of any officer of PMI.

4. The Undersigned further agrees that it will not disclose, publish or reveal any of the Information received from PMI to any other party whatsoever, except with the specific prior written authorization of an officer of PMI.

5. The parties hereto agree that information shall not be deemed Proprietary and the Undersigned shall have no obligation with respect to any such information which:

- (i) is already known to Undersigned, or

- (ii) is or becomes publicly known through no wrongful act of Undersigned; or
- (iii) is received from a third party without similar restriction and without breach of this Agreement; or
- (iv) is independently developed by Undersigned; or
- (v) is furnished to a third party by PMI without a similar restriction on the third party's rights'; or
- (vi) is approved for release by written authorization of PMI; or
- (vii) is disclosed pursuant to the requirement or request of a Governmental agency or disclosure is permitted by operation of law.

WITNESS:

ACKNOWLEDGED:

AUTHORIZED OFFICER:

Samuel H. Fuller

TITLE:

Vice President, ROSSIGNOL & ARCH

DATE:

9/29/84

RECEIVED

TO: Sam Fuller
cc: Tony Boglin
Jerry Lester

SEP 24 1984

SAM FULLER

DATE: September 20, 1984
FROM: Rick Kotulak
DEPT: Western Law
EXT: 522-3020
LOC/MAIL STOP: CXO2-1/J02

SUBJ: Pioneer Magnetics

Attached is a nondisclosure agreement for your review, which was negotiated between Pioneer Magnetics and Digital, at the request of Tony Boglin, Materials Manager for the Titan project.

The salient points are:

1. The agreement covers the exchange of information relating to a power supply for Titan;
2. We have gone just about as far as we can go without the nondisclosure agreement;
3. The agreement calls for us to hold the information confidential for five years;
4. Since our current intentions are that this component will be a buyout, we feel the impact on any future development on the Titan project will be low;
5. Tony has assured me that he can properly administrate the agreement.

Although the agreement is not the best we could wish for, I feel it is reasonable under the circumstances and from a legal perspective, recommend your signature.

If you agree, please execute both the attached copies of the agreement and forward them to Tony at his Mountain View address:

Mountain View Office
Digital Equipment Corporation
1400 Terra Bella Avenue
Mountain View, CA 94043-1884

If you have any questions, please feel free to get in touch.

Attachments

NON-DISCLOSURE AGREEMENT

This Agreement made by and between DIGITAL EQUIPMENT CORPORATION, 146 Main Street, Maynard, Massachusetts 01754 (hereinafter "DIGITAL"), and MICRODEVELOPMENT SERVICES, 22 HAILEY PLACE, COANLEIGH, SURRY, GU6-7E6, ENGLAND (hereinafter "MICRODEVELOPMENT SERVICES");

WHEREAS, DIGITAL wishes to transmit to MICRODEVELOPMENT SERVICES information relating to DIGITAL's new 32 bit system bus under development including, but not limited to:

- a) detailed bus specifications,
- b) detailed chip specifications, and
- c) business information relating to the project direction and market potentials,

all of which is deemed proprietary by DIGITAL (hereinafter "INFORMATION");

WHEREAS, MICRODEVELOPMENT SERVICES wishes to receive such INFORMATION for the sole purpose of evaluating the INFORMATION to assess the bus functionality and its market potential;

NOW, THEREFORE, the parties hereto agree as follows:

1. MICRODEVELOPMENT SERVICES agrees that it shall for a period of three (3) years from the date of disclosure prevent disclosure to any third party of the INFORMATION it receives from DIGITAL.
2. MICRODEVELOPMENT SERVICES shall use at least the same degree of care to avoid disclosure of the INFORMATION as it employs with respect to its own confidential proprietary information.
3. DIGITAL agrees that any INFORMATION disclosed which is in writing shall be appropriately marked as proprietary and confidential.
4. DIGITAL agrees that MICRODEVELOPMENT SERVICES shall have no obligation with respect to any such INFORMATION, which:
 - (a) is already known to MICRODEVELOPMENT SERVICES; or
 - (b) is or becomes publicly known through no wrongful act of MICRODEVELOPMENT SERVICES; or
 - (c) is rightfully received from a third party without similar restriction and without breach of this Agreement; or
 - (d) is independently developed by MICRODEVELOPMENT SERVICES without use of or reference to the INFORMATION; or

(e) is approved for release by written authorization of DIGITAL.

5. All tangible forms of the INFORMATION, such as written documentation, delivered by DIGITAL to MICRODEVELOPMENT SERVICES pursuant to this Agreement shall be and remain the property of DIGITAL. MICRODEVELOPMENT SERVICES agrees not to make any more than three (3) copies of such tangible forms of the INFORMATION. All forms of the INFORMATION, including any copies thereof, shall be promptly returned to DIGITAL upon written request, or destroyed at DIGITAL's option.

6. It is understood by MICRODEVELOPMENT SERVICES that such INFORMATION relates to products that are under development or planned for development by DIGITAL. DIGITAL MAKES NO WARRANTIES REGARDING THE ACCURACY OF THIS INFORMATION. DIGITAL accepts no responsibility for any expenses, losses, or action incurred or undertaken by MICRODEVELOPMENT SERVICES as a result of the receipt of the INFORMATION. IT IS FURTHER UNDERSTOOD BY MICRODEVELOPMENT SERVICES THAT DIGITAL DOES NOT WARRANT OR REPRESENT THAT IT WILL INTRODUCE ANY PRODUCT TO WHICH THE INFORMATION DISCLOSED HEREIN IS RELATED.

7. Nothing contained in this Agreement shall be construed as granting or conferring any rights by license or otherwise, expressly, impliedly, or otherwise for any invention, discovery or improvement made, conceived, or acquired prior to or after the date of this Agreement.

IN WITNESS WHEREOF, the parties hereto agree that the effective date of this Agreement shall be JANUARY 20, 1984.

MICRODEVELOPMENT SERVICES

DIGITAL EQUIPMENT CORPORATION

By _____
Duly Authorized

By Samuel W. Fuller
Duly Authorized

Title _____

Title _____

Date _____

Date _____

NON-DISCLOSURE AGREEMENT

In consideration of the disclosure to (1) _____
(hereinafter "Company") located at (2) _____
of information relating to (3) VLSI VAX, VAXSTATIONS, and NETWORKING
and other proprietary products, technology and/or processes of Digital Equipment Corporation ("Digital"), including, but not limited to, drawings, models, photographs, sketches and (4) _____, the Company agrees (i) to maintain such information (including all portions or copies thereof) confidential in the same manner as its own company proprietary information is maintained, (ii) not to disclose the information (or any portion or copy thereof) to any third party, and, (iii) not to use such information (or any portion or copy thereof) for any purpose except (5) _____

However, the obligations of this Agreement shall not apply to any information which is or which becomes generally known to the public by publication or by means other than a breach of duty by the Company or which becomes otherwise available to the Company through legal sources.

The Company further agrees not to make more than three (3) copies of any document or drawing provided as part of such information, and to return to Digital all such drawings or documents, and all copies thereof, upon Digital's request.

It is understood by the Company that such information may relate to products that are under development or planned for development. DIGITAL MAKES NO WARRANTIES REGARDING THE ACCURACY OF THIS INFORMATION. Digital accepts no responsibility for any expenses, losses, or action incurred or undertaken by the Company as a result of the receipt of this information. It is further understood by the Company that Digital does not warrant or represent that it will introduce any product to which the information disclosed herein is related.

Digital grants no license, by implication or otherwise, under any of its patents or patent rights as a result of disclosure of such information under this agreement.

WITNESSES: _____

COMPANY Ulrich W. Suter
BY Ulrich W. Suter, MIT
DATE April 4, 1983

Digital Equipment Corporation This agreement will be in effect for 3 years.

NON-DISCLOSURE AGREEMENT

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(hereinafter "Company") located at (2) _____
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and other proprietary products, technology and/or processes of
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own company proprietary information is maintained, (ii) not to
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or copy thereof) for any purpose except (5) _____

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information, and to return to Digital all such drawings or documents,
and all copies thereof, upon Digital's request.

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Company that Digital does not warrant or represent that it will
introduce any product to which the information disclosed herein is
related.

Digital grants no license, by implication or otherwise, under
any of its patents or patent rights as a result of disclosure of
such information under this agreement.

WITNESSES: _____

COMPANY Alan Caril Nelson

BY MIT

DATE 3-29-83

Alan Caril Nelson

Digital Equipment Corporation

This agreement will be in effect for 3 years.

1/27/84
f: copy w/ ADOBE
f: " w/ NON -
DISCLOSURE
Agreements

CONFIDENTIALITY AGREEMENT

This Agreement has been entered into as of the 1ST day of July, 1984 by and between Adobe Systems Incorporated, a corporation duly organized and existing under the laws of the State of California, and having a place of business at Suite 1415, 2685 Marine Way, Mountain View, California 94043, ("ADOBE"), and Digital Equipment Corporation, a corporation organized under the laws of the Commonwealth of Massachusetts, and having a place of business at 146 Main Street, Maynard, Massachusetts 01754 ("DIGITAL").

BACKGROUND

DIGITAL and ADOBE desire to exchange technical information regarding the customizing of ADOBE's POSTSCRIPT language interpreter to conform with DIGITAL-specific technological requirements. Since such discussions involve the exchange of confidential and proprietary information between DIGITAL and ADOBE, the parties now desire to expressly set forth their mutual rights and obligations with respect to such information.

ARTICLE 1 - DEFINITIONS

1.1 CONFIDENTIAL INFORMATION shall mean information which is proprietary, confidential and secret to DIGITAL or ADOBE, and which relates to the modification of ADOBE's POSTSCRIPT language interpreter in accordance with DIGITAL's technical specifications. DIGITAL confidential and proprietary information is more specifically identified and described in Exhibit A to this Agreement, and ADOBE confidential and proprietary information is more specifically identified and described in Exhibit B to this Agreement.

1.2 DIGITAL and ADOBE are hereafter occasionally referred to as a "party", "receiving party" or "disclosing party" in singular or plural form as indicated by the context.

ARTICLE 2 - CONFIDENTIALITY

2.1 The parties agree that for a period of ten (10) years commencing on the effective date of this Agreement as first above written, each party shall hold in confidence and not disclose or make available CONFIDENTIAL INFORMATION received under this Agreement in any form to any third party, except to employees of a party who require such information for the performance of their regular duties pursuant to this Agreement.

2.2 Neither party shall be liable for an inadvertent, unauthorized disclosure or use of CONFIDENTIAL INFORMATION received hereunder, provided that the parties use the same degree of care in safeguarding such information as they use for their

own confidential and proprietary information of like importance, and further provided that upon a party receiving written notice of or discovering an inadvertent, unauthorized disclosure or use, such party shall take steps to prevent the continuation or repetition of any such inadvertent and unauthorized disclosure or use including unauthorized disclosures and uses by persons who are or who have been in its employ.

2.3 Each party agrees to cease using and to return to the other party all whole or partial copies and derivatives of CONFIDENTIAL INFORMATION received pursuant to this Agreement (a) within thirty (30) calendar days of the termination of this Agreement for any reason whatsoever including expiration of term, or (b) within thirty (30) calendar days of a disclosing party's demand.

2.4 Each party's liability in damages to the other for breach of this Agreement shall be limited to actual damages including loss of investment proximately caused by such breach, but shall not include any special, consequential or contingent damages whatsoever.

2.5 CONFIDENTIAL INFORMATION shall not include, this Agreement shall not apply to, and neither party shall be obligated to hold in confidence information which:

(a) is not within the descriptions set forth in Exhibit A of this Agreement, or not set forth in a writing which is incorporated by amendment into Exhibit A by a disclosing party as soon as practicable (but not later than thirty (30) days following a disclosure) and which is conspicuously labeled as confidential and proprietary information;

(b) was in the lawful possession of a receiving party without confidentiality restrictions prior to receipt under this Agreement as evidenced by corroborated written documentation;

(c) is or becomes public knowledge without the fault of a receiving party;

(d) is or becomes lawfully available to a receiving party on an unrestricted basis from a source other than the disclosing party without breach of this Agreement;

(e) is made available on an unrestricted basis to a third party by a disclosing party or by someone acting under the disclosing party's control; or

(f) is developed by a receiving party wholly independent of CONFIDENTIAL INFORMATION received under this Agreement.

2.6 No computer program source code shall be exchanged under this Agreement in any manner.

2.7 The parties agree that the terms of this Article 2 including Clauses 2.1, 2.2, 2.3, 2.4 and 2.5 shall survive the termination of this Agreement for any reason whatsoever including expiration of term.

ARTICLE 3 - DISCLOSURE TERM AND TERMINATION

3.1 The term during which CONFIDENTIAL INFORMATION may be exchanged under this Agreement shall commence on the effective date of this Agreement as first above written, and shall expire one (1) year thereafter unless sooner terminated by either party upon ten (10) days prior written notice, or unless extended by the parties pursuant to a writing signed by duly authorized representatives of each party.

ARTICLE 4 - MISCELLANEOUS PROVISIONS

4.1 No patent rights, licenses or other invention rights, express or implied, shall be granted except as expressly set forth in this Agreement, and all inventions made heretofore or hereafter by either party shall remain the exclusive property of the party making such inventions.

4.2 NEITHER PARTY MAKES ANY WARRANTIES regarding the accuracy of information disclosed under this Agreement, and neither party accepts any responsibility for any expenses, losses, or action incurred or undertaken as a result of the receipt or reliance upon such information. It is specifically understood that NEITHER PARTY REPRESENTS OR WARRANTS that any products shall be developed, manufactured or marketed.

4.3 This Agreement represents the entire agreement between the parties with respect to the subject matter addressed herein, and supersedes all prior and contemporaneous oral and written proposals and communications.

4.4 If any provision or provisions of this Agreement shall be held to be invalid, illegal or unenforceable, the validity, legality and enforceability of the remaining provisions shall not in any way be affected or impaired thereby.

4.5 Any and all written notices, communications and deliveries between the parties with reference to this Agreement shall be sufficiently made on the date of mailing if sent by registered mail to the respective address, subject to change upon written notice, of the other party as follows:

In the case of DIGITAL: Ken Smith
Digital Equipment Corporation
MRO3-1/K20
2 Iron Way
Marlboro, MA 01752

In the case of ADOBE:

John Warnock
President
Adobe Systems Incorporated
Suite 1415
2685 Marine Way
Mountain View, CA 94043

4.6 The waiver by either party hereto of any right arising hereunder as a result of a failure to perform or a breach by the other party shall not be deemed as a waiver of any other right arising hereunder as a result of any other breach or failure by said other party, whether such other breach or failure is of a same or different nature.

4.7 Except for writings added to Exhibit A by mutual agreement pursuant to Clause 2.5 (a), no amendment to this Agreement shall be binding upon the parties unless it is in writing and is executed by duly authorized officers of each of the parties.

4.8 This Agreement shall be interpreted and construed under the laws of the Commonwealth of Massachusetts, and shall be binding upon the parties unless it is in writing and is executed by duly authorized officers of each of the parties.

IN WITNESS WHEREOF, the parties have caused the signatures of their duly authorized officers to be affixed to duplicate originals of this Agreement, including Exhibit A which is incorporated by reference herein, as of the effective date first above written.

ADOBE SYSTEMS INCORPORATED DIGITAL EQUIPMENT CORPORATION

By: John Warnock By: Samuel W. Faith
Title: President Title: Vice President of Research

EXHIBIT A

The following is a detailed identification and description of CONFIDENTIAL INFORMATION disclosed by DIGITAL under this Agreement:

EXHIBIT B

The following is a detailed identification and description of CONFIDENTIAL INFORMATION disclosed by ADOBE under this Agreement:



RECEIVED

APR 15 1983

SAVI FULLER

SCHOOL OF ENGINEERING
OFFICE OF THE DEAN

CAMBRIDGE, MASSACHUSETTS 02139
ROOM 1-206

April 14, 1983

Mr. Samuel H. Fuller
Senior Group Manager
Corporate Research & Architecture
DEC
77 Reed Road
Hudson, MA 01749

Dear Mr. Fuller:

Enclosed please find non-disclosure agreements that were signed by professors who met with Dean Wilson on March 13, 1983. The following is a listing of the professors who signed the agreement:

David C. Gossard
Professor of Mechanical Engineering

Robert D. Logcher
Professor of Civil Engineering

Sincerely,

Trudy Palmer

Trudy Palmer
Administrative Assistant to
Dean Gerald L. Wilson

enclosures

NON-DISCLOSURE AGREEMENT

In consideration of the disclosure to (1) _____
(hereinafter "Company") located at (2) _____
of information relating to (3) VLSI VAX, VAXSTATIONS, and NETWORKING
and other proprietary products, technology and/or processes of
Digital Equipment Corporation ("Digital"), including, but not limited
to, drawings, models, photographs, sketches and (4) _____,
the Company agrees (i) to maintain such information (including all
portions or copies thereof) confidential in the same manner as its
own company proprietary information is maintained, (ii) not to
disclose the information (or any portion or copy thereof) to any
third party, and, (iii) not to use such information (or any portion
or copy thereof) for any purpose except (5) _____

However, the obligations of this Agreement shall not apply to
any information which is or which becomes generally known to the
public by publication or by means other than a breach of duty by the
Company or which becomes otherwise available to the Company through
legal sources.

The Company further agrees not to make more than three (3)
copies of any document or drawing provided as part of such
information, and to return to Digital all such drawings or documents,
and all copies thereof, upon Digital's request.

It is understood by the Company that such information may relate
to products that are under development or planned for development.
DIGITAL MAKES NO WARRANTIES REGARDING THE ACCURACY OF THIS
INFORMATION. Digital accepts no responsibility for any expenses,
losses, or action incurred or undertaken by the Company as a result
of the receipt of this information. It is further understood by the
Company that Digital does not warrant or represent that it will
introduce any product to which the information disclosed herein is
related.

Digital grants no license, by implication or otherwise, under
any of its patents or patent rights as a result of disclosure of
such information under this agreement.

WITNESSES: _____

COMPANY David Gossard

BY David Gossard, MIT

DATE 4-13-83

Digital Equipment Corporation

This agreement will be in effect for 3 years.

NON-DISCLOSURE AGREEMENT

In consideration of the disclosure to (1) _____

(hereinafter "Company") located at (2) _____

of information relating to (3) VLSI VAX, VAXSTATIONS, and NETWORKING

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related.

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any of its patents or patent rights as a result of disclosure of
such information under this agreement.

WITNESSES: _____

COMPANY Robert Logcher
BY Robert Logcher, MIT
DATE 4-13-83

Digital Equipment Corporation

This agreement will be in effect for 3 years.



RECEIVED

MAR 30 1983

SAM FULLER

SCHOOL OF ENGINEERING
OFFICE OF THE DEAN

CAMBRIDGE, MASSACHUSETTS 02139
ROOM 1-206

March 28, 1983

Mr. Samuel H. Fuller
Senior Group Manager
Corporate Research & Architecture
DEC
77 Reed Road
Hudson, MA 01749

① copy to Jerome Lofe
② Orig. also to Belkovich

Dear Mr. Fuller:

Enclosed please find non-disclosure agreements that were signed by professors attending Dean Wilson's Computers in Education Committee meeting on February 28, 1983. The following is a listing of the professors who signed the agreement:

- Harold Abelson
Professor of Computer Science and Engineering
- David K. Gifford
Professor of Computer Science and Engineering
- Thomas F. Knight
Sponsored Research Staff, Artificial Intelligence Laboratory
- Eric M. Ostrom
Director of Computer Systems, Electrical Engineering and
Computer Science
- David Patrick Reed
Professor of Computer Science and Engineering
- Ronald Linn Rivest
Professor of Computer Science and Engineering
Associate Director, Laboratory for Computer Science
- Gerald Jay Sussman
Professor of Electrical Engineering
- Albert Vezza
Senior Research Scientist, Laboratory for Computer Science
Acting Associate Director, Laboratory for Computer Science
- Stephen Ashley Ward
Professor of Computer Science and Engineering

Sincerely,
Trudy Palmer
Trudy Palmer
Administrative Assistant to
Dean Gerald L. Wilson

enclosures

NON-DISCLOSURE AGREEMENT

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(hereinafter "Company") located at (2) _____
of information relating to (3) VLSI VAX, VAXSTATIONS, and NETWORKING
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Company that Digital does not warrant or represent that it will
introduce any product to which the information disclosed herein is
related.

Digital grants no license, by implication or otherwise, under
any of its patents or patent rights as a result of disclosure of
such information under this agreement.

WITNESSES: _____

COMPANY _____
BY Al Al
DATE _____

Digital Equipment Corporation

This agreement will be in effect for 3 years.

NON-DISCLOSURE AGREEMENT

In consideration of the disclosure to (1) David Gifford
(hereinafter "Company") located at (2) _____
of information relating to (3) VLSI VAX, VAXSTATIONS, and NETWORKING
and other proprietary products, technology and/or processes of
Digital Equipment Corporation ("Digital"), including, but not limited
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any of its patents or patent rights as a result of disclosure of
such information under this agreement.

WITNESSES: _____

COMPANY _____
BY DG _____
DATE 2/28/83 _____

Digital Equipment Corporation

This agreement will be in effect for 3 years.

NON-DISCLOSURE AGREEMENT

In consideration of the disclosure to (1) Thomas F. Knight Jr.

(hereinafter "Company") located at (2) _____

of information relating to (3) VLSI VAX, VAXSTATIONS, and NETWORKING

and other proprietary products, technology and/or processes of Digital Equipment Corporation ("Digital"), including, but not limited to, drawings, models, photographs, sketches and (4) _____, the Company agrees (i) to maintain such information (including all portions or copies thereof) confidential in the same manner as its own company proprietary information is maintained, (ii) not to disclose the information (or any portion or copy thereof) to any third party, and, (iii) not to use such information (or any portion or copy thereof) for any purpose except (5) _____

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WITNESSES: _____

COMPANY

BY Thomas F. Knight Jr.

DATE _____

Digital Equipment Corporation

This agreement will be in effect for 3 years.

NON-DISCLOSURE AGREEMENT

In consideration of the disclosure to (1) ERIK OSTRAM

(hereinafter "Company") located at (2) _____

of information relating to (3) VLSI VAX, VAXSTATIONS, and NETWORKING

and other proprietary products, technology and/or processes of Digital Equipment Corporation ("Digital"), including, but not limited to, drawings, models, photographs, sketches and (4) _____, the Company agrees (i) to maintain such information (including all portions or copies thereof) confidential in the same manner as its own company proprietary information is maintained, (ii) not to disclose the information (or any portion or copy thereof) to any third party, and, (iii) not to use such information (or any portion or copy thereof) for any purpose except (5) _____

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WITNESSES: _____

COMPANY MIT

BY Erik Ostram

DATE 2/28/83

Digital Equipment Corporation

This agreement will be in effect for 3 years.

NON-DISCLOSURE AGREEMENT

In consideration of the disclosure to (1) David P. Reed
(hereinafter "Company") located at (2) _____
of information relating to (3) VLSI VAX, VAXSTATIONS, and NETWORKING
and other proprietary products, technology and/or processes of
Digital Equipment Corporation ("Digital"), including, but not limited
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Digital grants no license, by implication or otherwise, under any of its patents or patent rights as a result of disclosure of such information under this agreement.

WITNESSES: _____

COMPANY M.I.T.
BY David P. Reed
DATE 2/28/83

Digital Equipment Corporation

This agreement will be in effect for 3 years.

NON-DISCLOSURE AGREEMENT

In consideration of the disclosure to (1) J. H. Saltzer

(hereinafter "Company") located at (2) _____

of information relating to (3) VLSI VAX, VAXSTATIONS, and NETWORKING

and other proprietary products, technology and/or processes of Digital Equipment Corporation ("Digital"), including, but not limited to, drawings, models, photographs, sketches and (4) _____, the Company agrees (i) to maintain such information (including all portions or copies thereof) confidential in the same manner as its own company proprietary information is maintained, (ii) not to disclose the information (or any portion or copy thereof) to any third party, and, (iii) not to use such information (or any portion or copy thereof) for any purpose except (5) _____

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Digital grants no license, by implication or otherwise, under any of its patents or patent rights as a result of disclosure of such information under this agreement.

WITNESSES: _____

COMPANY _____

BY Jan [Signature]

DATE 27 Feb 83

Digital Equipment Corporation

This agreement will be in effect for 3 years.

NON-DISCLOSURE AGREEMENT

In consideration of the disclosure to (1) SUSSMAN
(hereinafter "Company") located at (2) _____
of information relating to (3) VLSI VAX, VAXSTATIONS, and NETWORKING
and other proprietary products, technology and/or processes of
Digital Equipment Corporation ("Digital"), including, but not limited
to, drawings, models, photographs, sketches and (4) _____,
the Company agrees (i) to maintain such information (including all
portions or copies thereof) confidential in the same manner as its
own company proprietary information is maintained, (ii) not to
disclose the information (or any portion or copy thereof) to any
third party, and, (iii) not to use such information (or any portion
or copy thereof) for any purpose except (5) _____

However, the obligations of this Agreement shall not apply to
any information which is or which becomes generally known to the
public by publication or by means other than a breach of duty by the
Company or which becomes otherwise available to the Company through
legal sources.

The Company further agrees not to make more than three (3)
copies of any document or drawing provided as part of such
information, and to return to Digital all such drawings or documents,
and all copies thereof, upon Digital's request.

It is understood by the Company that such information may relate
to products that are under development or planned for development.
DIGITAL MAKES NO WARRANTIES REGARDING THE ACCURACY OF THIS
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of the receipt of this information. It is further understood by the
Company that Digital does not warrant or represent that it will
introduce any product to which the information disclosed herein is
related.

Digital grants no license, by implication or otherwise, under
any of its patents or patent rights as a result of disclosure of
such information under this agreement.

WITNESSES: _____

COMPANY _____
BY Cerald Jay Sussman
DATE _____

Digital Equipment Corporation

This agreement will be in effect for 3 years.

NON-DISCLOSURE AGREEMENT

In consideration of the disclosure to (1) Albert Vezza
(hereinafter "Company") located at (2) _____
of information relating to (3) VLSI VAX, VAXSTATIONS, and NETWORKING
and other proprietary products, technology and/or processes of
Digital Equipment Corporation ("Digital"), including, but not limited
to, drawings, models, photographs, sketches and (4) _____,
the Company agrees (i) to maintain such information (including all
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Company that Digital does not warrant or represent that it will
introduce any product to which the information disclosed herein is
related.

Digital grants no license, by implication or otherwise, under
any of its patents or patent rights as a result of disclosure of
such information under this agreement.

WITNESSES: _____

COMPANY _____
BY Albert Vezza
DATE 2/28/83

Digital Equipment Corporation

This agreement will be in effect for 3 years.

NON-DISCLOSURE AGREEMENT

In consideration of the disclosure to (1) STEPHEN A. WARD
(hereinafter "Company") located at (2) _____
of information relating to (3) VLSI VAX, VAXSTATIONS, and NETWORKING
and other proprietary products, technology and/or processes of
Digital Equipment Corporation ("Digital"), including, but not limited
to, drawings, models, photographs, sketches and (4) _____,
the Company agrees (i) to maintain such information (including all
portions or copies thereof) confidential in the same manner as its
own company proprietary information is maintained, (ii) not to
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third party, and, (iii) not to use such information (or any portion
or copy thereof) for any purpose except (5) _____

However, the obligations of this Agreement shall not apply to
any information which is or which becomes generally known to the
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Company or which becomes otherwise available to the Company through
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of the receipt of this information. It is further understood by the
Company that Digital does not warrant or represent that it will
introduce any product to which the information disclosed herein is
related.

Digital grants no license, by implication or otherwise, under
any of its patents or patent rights as a result of disclosure of
such information under this agreement.

WITNESSES: _____

COMPANY
BY Steph. A. Ward
DATE _____

Digital Equipment Corporation

This agreement will be in effect for 3 years.

NON-DISCLOSURE AGREEMENT

In consideration of the confidential nature of data of Digital Equipment Corporation relating to
Personal Computer Futures: UNIX, HW, SW, and unannounced products and
concepts that are discussed during this visit, relating to the PRO 350.

disclosed to the undersigned by Digital Equipment Corporation on
4 MARCH 83. The undersigned agrees to maintain such data confidential and not to disclose such data to third parties. However, the obligations of this agreement shall not apply to any data which is known to the undersigned at the time of its disclosure, is received by the undersigned from any source independent of Digital which is properly authorized to disclose it, or which becomes generally known to the public by a publication or other means other than by a breach of duty by the undersigned.

STANFORD UNIVERSITY

Firm

BY: *Dr. David Chaum*

DATE: March 4/83

NON-DISCLOSURE AGREEMENT

In consideration of the disclosure to (1) _____
(hereinafter "Company") located at (2) _____
of information relating to (3) VLSI VAX, VAXSTATIONS, and NETWORKING
and other proprietary products, technology and/or processes of
Digital Equipment Corporation ("Digital"), including, but not limited
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any of its patents or patent rights as a result of disclosure of
such information under this agreement.

WITNESSES: _____

COMPANY MIT
BY James D. Bruce
DATE 2/9 1983

Digital Equipment Corporation

This agreement will be in effect for 3 years.

NON-DISCLOSURE AGREEMENT

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(hereinafter "Company") located at (2) _____
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such information under this agreement.

WITNESSES: _____

COMPANY Mass Inst of Tech.
BY C. Chrymides
DATE 09/09/83

NON-DISCLOSURE AGREEMENT

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(hereinafter "Company") located at (2) _____
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such information under this agreement.

WITNESSES: _____

COMPANY MIT
BY Alan R. Sen
DATE 2/9/83

Digital Equipment Corporation

This agreement will be in effect for 3 years.

NON-DISCLOSURE AGREEMENT

In consideration of the disclosure to (1) _____
(hereinafter "Company") located at (2) _____
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such information under this agreement.

WITNESSES: _____

COMPANY MIT
BY James A. Har
DATE 9 FEB 1983

NON-DISCLOSURE AGREEMENT

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any of its patents or patent rights as a result of disclosure of
such information under this agreement.

WITNESSES: _____

COMPANY MIT
BY Judith L. Schway
DATE _____

Digital Equipment Corporation

This agreement will be in effect for 3 years.

NON-DISCLOSURE AGREEMENT

In consideration of the disclosure to (1) _____
(hereinafter "Company") located at (2) _____
of information relating to (3) VLSI VAX, VAXSTATIONS, and NETWORKING
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any of its patents or patent rights as a result of disclosure of
such information under this agreement.

WITNESSES: _____

COMPANY M.I.T.
BY David Weemley
DATE _____

Digital Equipment Corporation

This agreement will be in effect for 3 years.

NON-DISCLOSURE AGREEMENT

In consideration of the disclosure to (1) _____
(hereinafter "Company") located at (2) _____
of information relating to (3) VLSI VAX, VAXSTATIONS, and NETWORKING
and other proprietary products, technology and/or processes of
Digital Equipment Corporation ("Digital"), including, but not limited
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any of its patents or patent rights as a result of disclosure of
such information under this agreement.

WITNESSES: _____

COMPANY MASS. INST. of TECH.
BY Barbara J. Quensel
DATE 9 FEB 1983

Digital Equipment Corporation

This agreement will be in effect for 3 years.

NON-DISCLOSURE AGREEMENT

In consideration of the disclosure to (1) Gerry Wilson
(hereinafter "Company") located at (2) Cambridge, MA
of information relating to (3) VLSI VAX, VAXSTATIONS, and NETWORKING
and other proprietary products, technology and/or processes of Digital Equipment Corporation ("Digital"), including, but not limited to, drawings, models, photographs, sketches and (4) _____, the Company agrees (i) to maintain such information (including all portions or copies thereof) confidential in the same manner as its own company proprietary information is maintained, (ii) not to disclose the information (or any portion or copy thereof) to any third party, and, (iii) not to use such information (or any portion or copy thereof) for any purpose except (5) _____

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Digital grants no license, by implication or otherwise, under any of its patents or patent rights as a result of disclosure of such information under this agreement.

COMPANY MIT
BY J. L. Wilson
DATE 1/3/82

This agreement is in effect for three years.

NON-DISCLOSURE AGREEMENT

In consideration of the disclosure to (1) Patrick Winston
(hereinafter "Company") located at (2) Cambridge, MA
of information relating to (3) VLSI VAX, VAXSTATIONS, and NETWORKING
and other proprietary products, technology and/or processes of Digital Equipment Corporation ("Digital"), including, but not limited to, drawings, models, photographs, sketches and (4) _____, the Company agrees (i) to maintain such information (including all portions or copies thereof) confidential in the same manner as its own company proprietary information is maintained, (ii) not to disclose the information (or any portion or copy thereof) to any third party, and, (iii) not to use such information (or any portion or copy thereof) for any purpose except (5) _____

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COMPANY MIT
BY Patrick H. Winston
DATE 11/3/83

This agreement is in effect for three years.

NON-DISCLOSURE AGREEMENT

In consideration of the disclosure to (1) Joel Moses
(hereinafter "Company") located at (2) Cambridge, MA
of information relating to (3) VLSI VAX, VAXSTATIONS, and NETWORKING
and other proprietary products, technology and/or processes of Digital Equipment Corporation ("Digital"), including, but not limited to, drawings, models, photographs, sketches and (4) _____, the Company agrees (i) to maintain such information (including all portions or copies thereof) confidential in the same manner as its own company proprietary information is maintained, (ii) not to disclose the information (or any portion or copy thereof) to any third party, and, (iii) not to use such information (or any portion or copy thereof) for any purpose except (5) _____

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COMPANY _____
BY Joel Moses
DATE 1-3-83

This agreement is in effect for three years.

NON-DISCLOSURE AGREEMENT

In consideration of the disclosure to (1) F.J. Corbató
(hereinafter "Company") located at (2) Cambridge, MA
of information relating to (3) VLSI VAX, VAXSTATIONS, and NETWORKING
and other proprietary products, technology and/or processes of
Digital Equipment Corporation ("Digital"), including, but not limited
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such information under this agreement.

This agreement is in
effect for three years.

COMPANY _____
BY F. J. Corbató
DATE Jan. 3, 1983

NON-DISCLOSURE AGREEMENT

In consideration of the disclosure to (1) Michael Dertouzos
(hereinafter "Company") located at (2) Cambridge, MA
of information relating to (3) VLSI VAX, VAXSTATIONS, and NETWORKING
and other proprietary products, technology and/or processes of Digital Equipment Corporation ("Digital"), including, but not limited to, drawings, models, photographs, sketches and (4) _____, the Company agrees (i) to maintain such information (including all portions or copies thereof) confidential in the same manner as its own company proprietary information is maintained, (ii) not to disclose the information (or any portion or copy thereof) to any third party, and, (iii) not to use such information (or any portion or copy thereof) for any purpose except (5) _____

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This agreement is in effect for three years.

COMPANY _____
BY *Michael Dertouzos*
DATE 1/3/82

2215

OK, File of now serial
J11 spec.

NON-DISCLOSURE AGREEMENT

In consideration of the disclosure to (1) Dr. Dan Siewiorek
of Carnegie-Mellon University
(hereinafter "Company") located at (2) Pittsburgh, PA 15213

of information relating to (3) J-11 Chip System Spec., J-11 Control Chip Spec.,
and J-11 Data Chip Spec.

and other proprietary products, technology and/or processes of
Digital Equipment Corporation ("Digital"), including, but not limited
to, drawings, models, photographs, sketches and (4) N/A
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INFORMATION. Digital accepts no responsibility for any expenses,
losses, or action incurred or undertaken by the Company as a result
of the receipt of this information. It is further understood by the
Company that Digital does not warrant or represent that it will
introduce any product to which the information disclosed herein is
related.

Digital grants no license, by implication or otherwise, under
any of its patents or patent rights as a result of disclosure of
such information under this agreement.

WITNESSES: _____

COMPANY Carnegie-Mellon University
BY Daniel P. Siewiorek
DATE 10/26/82

Digital Equipment Corporation

James W. Full
15 Oct 1982

NON-DISCLOSURE AGREEMENT

In consideration of the disclosure to (1) Dr. Dan Siewiorek
of Carnegie-Mellon University
(hereinafter "Company") located at (2) Pittsburgh, PA 15213
of information relating to (3) J-11 Chip System Spec., J-11 Control Chip Spec.,
and J-11 Data Chip Spec.
and other proprietary products, technology and/or processes of
Digital Equipment Corporation ("Digital"), including, but not limited
to, drawings, models, photographs, sketches and (4) N/A,
the Company agrees (i) to maintain such information (including all
portions or copies thereof) confidential in the same manner as its
own company proprietary information is maintained, (ii) not to
disclose the information (or any portion or copy thereof) to any
third party, and, (iii) not to use such information (or any portion
or copy thereof) for any purpose except (5) _____

However, the obligations of this Agreement shall not apply to
any information which is or which becomes generally known to the
public by publication or by means other than a breach of duty by the
Company or which becomes otherwise available to the Company through
legal sources.

The Company further agrees not to make more than three (3)
copies of any document or drawing provided as part of such
information, and to return to Digital all such drawings or documents,
and all copies thereof, upon Digital's request.

It is understood by the Company that such information may relate
to products that are under development or planned for development.
DIGITAL MAKES NO WARRANTIES REGARDING THE ACCURACY OF THIS
INFORMATION. Digital accepts no responsibility for any expenses,
losses, or action incurred or undertaken by the Company as a result
of the receipt of this information. It is further understood by the
Company that Digital does not warrant or represent that it will
introduce any product to which the information disclosed herein is
related.

Digital grants no license, by implication or otherwise, under
any of its patents or patent rights as a result of disclosure of
such information under this agreement.

WITNESSES: _____

COMPANY Carnegie-Mellon University
BY Daniel P. Siewiorek
DATE 10/26/82

Digital Equipment Corporation
Ernest W. Full
15 Oct 1982

NON-DISCLOSURE AGREEMENT

In consideration of the disclosure to (1) Brian Reid

(hereinafter "Company") located at (2) _____

of information relating to (3) workstations;

and other proprietary products, technology and/or processes of Digital Equipment Corporation ("Digital"), including, but not limited to, drawings, models, photographs, sketches and (4) _____, the Company agrees (i) to maintain such information (including all portions or copies thereof) confidential in the same manner as its own company proprietary information is maintained, (ii) not to disclose the information (or any portion or copy thereof) to any third party, and, (iii) not to use such information (or any portion or copy thereof) for any purpose except (5) _____

However, the obligations of this Agreement shall not apply to any information which is or which becomes generally known to the public by publication or by means other than a breach of duty by the Company or which becomes otherwise available to the Company through legal sources.

The Company further agrees not to make more than three (3) copies of any document or drawing provided as part of such information, and to return to Digital all such drawings or documents, and all copies thereof, upon Digital's request.

It is understood by the Company that such information may relate to products that are under development or planned for development. DIGITAL MAKES NO WARRANTIES REGARDING THE ACCURACY OF THIS INFORMATION. Digital accepts no responsibility for any expenses, losses, or action incurred or undertaken by the Company as a result of the receipt of this information. It is further understood by the Company that Digital does not warrant or represent that it will introduce any product to which the information disclosed herein is related.

Digital grants no license, by implication or otherwise, under any of its patents or patent rights as a result of disclosure of such information under this agreement.

COMPANY self

BY Brian K. Reid

DATE 1 July 82

NON-DISCLOSURE AGREEMENT

In consideration of the disclosure to (1) FORST BASKETT
(hereinafter "Company") located at (2) _____
of information relating to (3) CI, ONYX, VLSI tools, future VAX
processors, and Personal Workstations.
and other proprietary products, technology and/or processes of
Digital Equipment Corporation ("Digital"), including, but not limited
to, drawings, models, photographs, sketches and (4) _____,
the Company agrees (i) to maintain such information (including all
portions or copies thereof) confidential in the same manner as its
own company proprietary information is maintained, (ii) not to
disclose the information (or any portion or copy thereof) to any
third party, and, (iii) not to use such information (or any portion
or copy thereof) for any purpose except (5) _____

However, the obligations of this Agreement shall not apply to
any information which is or which becomes generally known to the
public by publication or by means other than a breach of duty by the
Company or which becomes otherwise available to the Company through
legal sources.

The Company further agrees not to make more than three (3)
copies of any document or drawing provided as part of such
information, and to return to Digital all such drawings or documents,
and all copies thereof, upon Digital's request.

It is understood by the Company that such information may relate
to products that are under development or planned for development.
DIGITAL MAKES NO WARRANTIES REGARDING THE ACCURACY OF THIS
INFORMATION. Digital accepts no responsibility for any expenses,
losses, or action incurred or undertaken by the Company as a result
of the receipt of this information. It is further understood by the
Company that Digital does not warrant or represent that it will
introduce any product to which the information disclosed herein is
related.

Digital grants no license, by implication or otherwise, under
any of its patents or patent rights as a result of disclosure of
such information under this agreement.

for DEC
Samuel W. Fuller
15 March 1982

COMPANY _____
BY Forst Baskett
DATE 3/15/82

f: chow
cc: Litsky *sent*
2-2-82
107

NON-DISCLOSURE AGREEMENT

In consideration of the disclosure to (1) BRIAN REID
(hereinafter "Company") located at (2) _____
of information relating to (3) FUTURE WORKSTATION AND GRAPHIC
DISPLAY PRODUCTS
and other proprietary products, technology and/or processes of
Digital Equipment Corporation ("Digital"), including, but not limited
to, drawings, models, photographs, sketches and (4) _____,
the Company agrees (i) to maintain such information (including all
portions or copies thereof) confidential in the same manner as its
own company proprietary information is maintained, (ii) not to
disclose the information (or any portion or copy thereof) to any
third party, and, (iii) not to use such information (or any portion
or copy thereof) for any purpose except (5) _____

However, the obligations of this Agreement shall not apply to
any information which is or which becomes generally known to the
public by publication or by means other than a breach of duty by the
Company or which becomes otherwise available to the Company through
legal sources.

The Company further agrees not to make more than three (3)
copies of any document or drawing provided as part of such
information, and to return to Digital all such drawings or documents,
and all copies thereof, upon Digital's request.

It is understood by the Company that such information may relate
to products that are under development or planned for development.
DIGITAL MAKES NO WARRANTIES REGARDING THE ACCURACY OF THIS
INFORMATION. Digital accepts no responsibility for any expenses,
losses, or action incurred or undertaken by the Company as a result
of the receipt of this information. It is further understood by the
Company that Digital does not warrant or represent that it will
introduce any product to which the information disclosed herein is
related.

Digital grants no license, by implication or otherwise, under
any of its patents or patent rights as a result of disclosure of
such information under this agreement.

COMPANY Brian F. Reid
BY Brian F. Reid
DATE 19 Jan. 1982

DENNIS F. CROSSEN
ACCOUNT MANAGER

symbolics inc.

ELEVEN CAMBRIDGE CENTER
CAMBRIDGE, MASSACHUSETTS 02142
617/621-7600 TELEX 948686
FACSIMILE 617/621-7847

digital

TO: Sam Fuller
FROM: John McDermott *John McDermott*
DATE: June 22, 1988
SUBJECT: SYMBOLICS PROPOSAL

→ copy (order on this)

Enclosed is the Symbolics proposal. Both legal and I have reviewed this proposal, and feel that it is ready to be signed by you.

cc: Gary Clapp
Barry Reynolds
Tim Yeaton

*Weenat Bond
65% COTTON FIBER*

symbolics

June 21, 1988

Mr. Sam Fuller
Digital Equipment Corporation
146 Main Street, MLO12-2/TO7
Maynard, Massachusetts 01754-2571

Dear Mr. Fuller:

As a result of continuing conversations between our two companies, Symbolics is pleased to present this proposal for providing our software technology for your evaluation and potential distribution to your customers. We believe this proposal accurately reflects the desires and requirements of DEC based on our discussions.

BACKGROUND

Symbolics is a supplier of state-of-the-art symbolic processing hardware and software systems. Recently Symbolics announced and demonstrated to DEC two new software products - Joshua, a software substrate and protocol for building complex, high performance expert systems, and Statice, an object oriented data base.

DEC is a major supplier of general purpose networked computer systems. One thrust of DEC is to augment these systems with artificial intelligence, symbolic processing and expert system capabilities. While DEC can design and write software in support of such a thrust, time and effort can potentially be minimized through the evaluation and use of existing software technology.

The intent of this proposal is for Symbolics to port its Joshua and Statice software products to run on DEC's Vax family of networked computers. If DEC so chooses, it may market and distribute these software products, under provisions which would be negotiated in good faith by both companies.

APPROACH

Given that DEC has been given only an introductory demonstration of the products and that DEC would like to know more about them, Symbolics is recommending a two phase approach to the porting of these software products: an exploratory phase and an implementation phase. The joint technical exploratory phase would focus on the capabilities of the software products, how they might integrate into the Vax family and the scope of the R&D effort to port and support these products. Issues to be investigated during this investigatory phase include, but are not limited to, the following:

- 1) the current suitability of VAX Lisp and available development tools for the porting effort;
- 2) Flavors or CLOS support;
- 3) logic variables and lexical functions;
- 4) user interface issues;
- 5) metering facilities;
- 6) debugging facilities; and
- 7) level of port.

As a part of the exploration phase, Symbolics will provide a technical risk assessment, scope of work, performance estimates, a multi-step porting plan, and firm quotes for the remaining phase. In addition, as time permits, Symbolics will work towards a demonstration of feasibility of a basic core of Joshua running on a Vax system. While not a specific deliverable, the intent is to have at the end of the first phase a working example of a Joshua expert system running on the Vax.

The second phase is the implementation of Joshua to the point where it can be offered as a product directly by DEC. Each port will be a software only system and not require any special hardware from Symbolics.

TERMS

An initial, non-refundable \$70,000 fee is required upon agreement to proceed with the exploratory phase. Conditions and payment terms for the second phase of the porting work will be negotiated during the exploratory period.

Symbolics best budgetary estimates at the present time is \$200,000 each for completing the second phase implementation of Joshua and/or Static. This budgetary estimate is based upon an assumption of the existence of underlying Lisp and symbolic processing facilities to support the ported software. A firm quote will be supplied as a part of the exploratory phase.

After demonstration of the ported software, DEC may choose to market and distribute the ported software on its VAX family of systems, subject to terms to be negotiated. If DEC chooses not to market and distribute the ported software, then Symbolics will have an option for marketing and distribution rights for the ported software, subject to terms to be negotiated.

Such issues as loaner machines to do the work, marketing and distribution rights, potential distribution channels, delivery schedules, and support will also need to be addressed pending completion of the exploratory phase.

CONCLUSION

Symbolics feels that it has software products that could prove to be very valuable to DEC in its push into AI, symbolic processing and expert systems. We hope you find this proposal acceptable. This letter is intended to address the main points of our proposal and a legally binding and enforceable agreement between us is subject to completion of satisfactory documentation and the approval of our respective counsel.

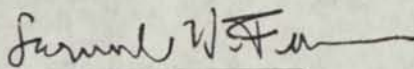
If you agree to go forward with us in a good faith effort to attempt to complete an agreement for the first phase of this proposal, please so indicate by signing and returning to me a copy of this letter.

Sincerely,



Donald Sundue
Vice President
Engineering Programs

Agreed to and accepted:



Sam Fuller
Digital Equipment Corporation

BILATERAL
CONFIDENTIALITY AGREEMENT

This agreement is entered into as of the 21st day of June, 1988, by and between Digital Equipment Corporation, having a place of business at 77 Reed Road, Hudson, MA, hereafter "DIGITAL", and Symbolics, Inc., having a place of business at 11 Cambridge Center, Cambridge, MA 02142, hereafter "SYMBOLICS".

Whereas, SYMBOLICS and DIGITAL desire to enter into technical discussions for the purpose of exploratory meetings and investigations as a part of a cooperative relationship;

And wherein, it is anticipated that the above will require DIGITAL and SYMBOLICS to each disclose proprietary and confidential information and technology to the other;

It is thereby defined that, in the following agreement:

The term "DISCLOSING PARTY" shall mean the party, either DIGITAL or SYMBOLICS, which is disclosing its PROPRIETARY INFORMATION to the other party and the term "RECIPIENT" shall mean the party which is respectively receiving the PROPRIETARY INFORMATION of the other party;

PROPRIETARY INFORMATION is information in any form which is proprietary, confidential and secret to the disclosing party;

SYMBOLICS PROPRIETARY INFORMATION shall include, in particular, but not be limited to, GENERA-software development environment, JOSHUA-AI language and STATICE-object oriented database;

DIGITAL PROPRIETARY INFORMATION shall include, in particular, but not be limited to, Digital's AI product strategy and directions, and functionality of current and future releases of VAX LISP and associated development environment and tools;

INTELLECTUAL PROPERTY RIGHTS shall include all rights, title and interest in:

All Letters Patent and Applications for Letters Patent, including all reissue, division, continuation or continuation in part Applications, throughout the world and now or hereinafter filed;

All trade secret rights or equivalent rights arising under all domestic and foreign laws;

All trademark rights, all copyrights and all mask work rights; and

All know-how and show-how;

Now, therefore, the parties agree as follows:

1. The DISCLOSING PARTY will mark all PROPRIETARY INFORMATION as confidential and proprietary to the DISCLOSING PARTY or, in the alternative, provide written notice to RECIPIENT that the PROPRIETARY INFORMATION is confidential and proprietary to the DISCLOSING PARTY, the written notice including an identification of the PROPRIETARY INFORMATION and, if the PROPRIETARY INFORMATION is communicated in oral form, such PROPRIETARY INFORMATION shall be reduced to suitably marked written form;
2. RECIPIENT will maintain PROPRIETARY INFORMATION, including all copies or portions thereof, as confidential and will utilize the same procedures and controls as it employs to protect its own confidential information;
3. RECIPIENT will legibly reproduce without alteration the confidential and proprietary legends of the DISCLOSING PARTY on all copies or partial copies made of PROPRIETARY INFORMATION;
4. RECIPIENT will not disclose PROPRIETARY INFORMATION or any portion or copy thereof to any third party without the written consent of the DISCLOSING PARTY;
5. RECIPIENT will not use PROPRIETARY INFORMATION or any portion or copy thereof for any purpose except as necessary for the purposes stated above;
6. RECIPIENT will limit access to the PROPRIETARY INFORMATION to only those of its personnel who have a need for such access in order to meet the purposes for which the PROPRIETARY INFORMATION was disclosed to RECIPIENT and will notify such personnel of the obligation of confidentiality;
7. All tangible forms of the PROPRIETARY INFORMATION shall be and remain the property of the DISCLOSING PARTY and, upon written request by the DISCLOSING PARTY, shall be promptly delivered to the DISCLOSING PARTY or destroyed, at the election of the DISCLOSING PARTY;

8. RECIPIENT will promptly notify DISCLOSING PARTY of the receipt of any request, order or demand for production or disclosure of PROPRIETARY INFORMATION that is received by RECIPIENT from any State or Federal Court or Regulatory Agency and will provide such notice within the period of time to respond to such a request, order or demand;
9. This Agreement will not apply to, nor shall PROPRIETARY INFORMATION include, any information which:
 - 9.1 is not included within the above description of PROPRIETARY INFORMATION and is not otherwise bound by restrictions of confidentiality;
 - 9.2 was rightly in the RECIPIENT's possession without restrictions of confidentiality prior to receipt under this Agreement;
 - 9.3 is or becomes public knowledge without the fault of the RECIPIENT; or
 - 9.4 is or had been developed or rightly acquired by RECIPIENT independently of the PROPRIETARY INFORMATION disclosed under the present Agreement, except that such independent development or acquisition shall not effect the confidentiality of the PROPRIETARY INFORMATION disclosed by the DISCLOSING PARTY;
10. DISCLOSING PARTY makes no warranty, express or implied, regarding the accuracy of the PROPRIETARY INFORMATION provided under the present Agreement or to the future actions or intentions of the DISCLOSING PARTY with respect to the PROPRIETARY INFORMATION and accepts no responsibility for any expenses, losses or action incurred or undertaken by RECIPIENT as a result of the receipt of PROPRIETARY INFORMATION;
11. No rights or obligations other than those expressly recited herein are to be implied from the present Agreement; and
 - 11.1 no patent rights, licenses or other rights, express or implied, shall be granted by this Agreement except as expressly stated herein and all inventions independently made heretofore or hereafter by either party shall remain the exclusive property of the party making such inventions;
 - 11.2 SYMBOLICS shall retain all right, title and interests, including all INTELLECTUAL PROPERTY RIGHTS, in SYMBOLICS PROPRIETARY INFORMATION; and

- 11.3 DIGITAL shall retain all right, title and interests, including all INTELLECTUAL PROPERTY RIGHTS, in all DIGITAL PROPRIETARY INFORMATION;
- 11.4 nothing herein shall preclude the independent research, experimentation, development or marketing of technologies or products related to or similar to any described in the PROPRIETARY INFORMATION by either party unless such activities will constitute a breach of the present Agreement; and
- 11.5 the DISCLOSING PARTY understands that the RECIPIENT may evaluate, design, develop or acquire from third parties information which is similar or related to the PROPRIETARY INFORMATION in the course of product evaluation, design, development or acquisition and that existing or future designs, developments or acquisitions of the RECIPIENT may contain independently developed or acquired ideas and concepts which are similar or indetical to those contained in the PROPRIETARY INFORMATION and further understands that, over time, the employees of the RECIPIENT will gain knowledge and experience with ideas and concepts similar or identical to those constained in the PROPRIETARY INFORMATION and agrees that entering into this Agreement shall not preclude, in any way, the RECIPIENT from using such ideas and concepts, without any obligation to the DISCLOSING PARTY, provided that such use arises from the independent design, development or acquisition of such ideas and concepts and not from a breach of the present Agreement;
12. The term during which the present Agreement will be in force and during which PROPRIETARY INFORMATION may be provided to the RECIPIENT by the DISCLOSING PARTY shall commence on the date the present Agreement is executed by duly authorized representatives of the parties hereto and shall expire one (1) year after the execution of this agreement unless sooner terminated by either party on ten (10) days written notice or unless extended by the parties pursuant to a writing executed by duly authorized representatives of the parties hereto;
13. The parties agree that the terms of Sections 1 through 11 inclusive of this Agreement shall survive the termination of this Agreement for any reason whatsoever, including expiration of the term of the Agreement, for a period of five (5) years after the termination of this Agreement.

14. Any and all written notices, communications and deliveries between the parties with respect to the present Agreement shall be sufficiently made on the date of mailing or sent by registered or certified mail to the respective addresses identified below:

FOR DIGITAL: Dr. John McDermott, DLB5-3/E3
Digital Equipment Corporation
290 Donald Lynch Boulevard
Marlboro, MA 01752-4790

FOR SYMBOLICS: Stephen Korn
Vice President/ General Counsel
Eleven Cambridge Center
Cambridge, MA 02142

15. If any provision or provisions of the present Agreement shall be held to be invalid, illegal or unenforceable, the validity, legality and enforceability of the remaining provisions shall not be affected or impaired thereby in any way;
16. The waiver by either party hereto of any right arising hereunder as a result of a failure to perform or a breach by the other party shall not be deemed as a waiver of any other right arising hereunder as a result of any other breach or failure by the other party, whether the other breach or failure is of a same or different nature;
17. This Agreement shall be interpreted and construed under the laws of the Commonwealth of Massachusetts, and shall be binding upon and enure to the benefit of the parties hereto and their respective successors and lawful assigns and no amendment to this Agreement shall be binding upon the parties hereto unless the amendment is in writing and executed by duly authorized representatives of each of the parties hereto;
18. Notwithstanding any other provision of this Agreement, the RECIPIENT agrees not to export, directly or indirectly, any United States source technical data acquired from the DISCLOSING PARTY and any products utilizing such data to any countries outside the United States wherein such export may be in violation of the United States Export Laws or Regulations, except that nothing in this Section 18 releases the RECIPIENT from any obligations stated elsewhere in this Agreement; and

19. This Agreement represents the entire agreement between the parties hereto with respect to the subject matter addressed herein, and supersedes all prior and contemporaneous oral and written proposals and communications.

IN WITNESS WHEREOF, the parties have caused their signatures to be affixed to duplicate originals of this Agreement.

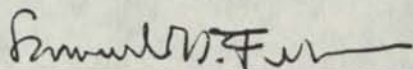
We, the undersigned, have read and understand the terms and conditions set forth in this Agreement and hereby adopt the terms and conditions of the Agreement, including the confidentiality obligations expressly set forth herein.

DIGITAL:

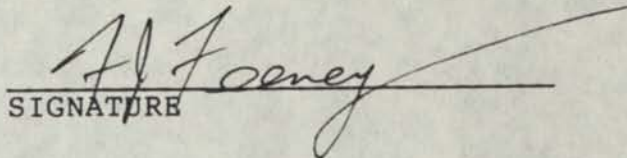
SYMBOLICS:

By: Samuel H. Fuller

By: Francis J. Feeney, Jr.



SIGNATURE



SIGNATURE

TITLE: Vice President

Assistant General Counsel
TITLE:

June 29, 1988
DATE

June 21, 1988
DATE

NON-DISCLOSURE AGREEMENT

This Agreement is made by and between DIGITAL EQUIPMENT CORPORATION, a Massachusetts corporation having principal offices at 146 Main Street, Maynard, Massachusetts 01754 (hereinafter "DIGITAL"), and Multiflow Computer, Inc., a Delaware corporation having principal offices at 31 Business Park Drive, Branford, Connecticut 06405 (hereinafter "MULTIFLOW").

WHEREAS, DIGITAL and MULTIFLOW desire to enter into discussions during the term of this Agreement which shall involve the disclosure of confidential and proprietary information relating to MULTIFLOW's VLIW technology and DIGITAL's design tools, packaging and interconnect technology (hereinafter "CONFIDENTIAL INFORMATION"); and

WHEREAS, each party desires to receive such CONFIDENTIAL INFORMATION for the purpose of evaluating the compatibility of their respective technologies.

NOW THEREFORE, the parties agree as follows:

A. CONFIDENTIALITY

1. During the term of this Agreement and for a period of three (3) years after the termination date of this Agreement, each party will hold in confidence CONFIDENTIAL INFORMATION it receives from the other, and will make no use of such CONFIDENTIAL INFORMATION except for the purposes expressly stated in Section A.3 herein, provided:

a. CONFIDENTIAL INFORMATION is clearly marked confidential and proprietary; and

b. if orally disclosed, CONFIDENTIAL INFORMATION is summarized in writing, marked confidential and proprietary, and delivered to the receiving party within thirty (30) days after oral disclosure; and

c. (i) all tangible materials and written notices provided to DIGITAL from MULTIFLOW shall be sent or delivered to:

Dr. Bruce Collier
Digital Equipment Corporation
MLO1-3/B10
146 Main Street
Maynard, Massachusetts 01754; and

(ii) all tangible materials and written notices provided to MULTIFLOW from DIGITAL shall be sent or delivered to:

Mr. Leigh Cagan
Director, Corporate Development
Multiflow Computer, Inc.
31 Business Park Drive
Branford, Connecticut 06405.

2. Each party shall use the same degree of care to avoid disclosure or misuse of CONFIDENTIAL INFORMATION (which is marked and received as set forth in Section A.1 above) as such party employs with respect to its own highly sensitive confidential information.

3. Each party shall use CONFIDENTIAL INFORMATION received under this Agreement solely for the purpose of evaluating the compatibility of their respective technologies, and for no other purpose.

4. CONFIDENTIAL INFORMATION shall not include and neither party shall incur confidentiality obligations with respect to any information received under this Agreement which:

a. is already known to a receiving party at the time of receipt, and the receiving party so advises the disclosing party within thirty (30) days of such receipt; or

b. is in the public domain at the time of disclosure or becomes publicly known through no wrongful act or failure to act of a receiving party; or

c. is rightfully received by a receiving party from a third party who had a lawful right to disclose it to the receiving party; or

d. is independently developed by a receiving party without breach of this Agreement and without use, directly or indirectly, of CONFIDENTIAL INFORMATION received from the disclosing party; or

e. is approved for release without confidentiality restrictions by written authorization of a disclosing party; or

f. is disclosed pursuant to the requirement or order of a governmental agency, provided that all administrative procedures for protecting the confidentiality of such information have been exhausted and the disclosing party is given written notice of such requirement or order within five (5) work days of its receipt; or

g. is furnished to a third party by a disclosing party without confidentiality restrictions on the third party.

5. The liability in money damages incurred by one party to the other, as a result of either a breach of this Agreement, or a breach of confidence related directly or indirectly to performances under this Agreement, for any reason whatsoever, whether in contract or in tort including negligence, shall not exceed two million dollars (\$2,000,000). Nothing in this Agreement shall prevent either party from pursuing any remedy available to it, including, without limitation, seeking injunctive relief under this Agreement. The monetary damage cap of the first sentence of this Section shall not apply to any claim or action other than a breach of contract, or a breach of confidence related directly or indirectly to performances under this Agreement, and in particular shall not apply to any action for patent or copyright infringement.

6. All whole and partial copies and derivatives of CONFIDENTIAL INFORMATION disclosed by one party to the other pursuant to this Agreement shall be and shall remain the property of the disclosing party solely. Except for one archival copy to be maintained by the receiving party's Legal Department, or outside Legal Counsel, at the receiving party's choice, and except for electronic, optic and magnetic copies which shall be immediately destroyed by the receiving party upon written request received from the disclosing party, all whole and partial copies and derivatives of CONFIDENTIAL INFORMATION shall be promptly delivered to the disclosing party upon written request, or at the disclosing party's option shall be destroyed and a written certification of such destruction shall be delivered within ten (10) work days thereafter to the disclosing party. The receiving party otherwise shall cease using the CONFIDENTIAL INFORMATION immediately upon receipt of the disclosing party's request.

7. Both parties agree not to disclose the existence of this Agreement, nor refer to the other party with respect to the subject matter of this Agreement in connection with any product, promotion or publication without the prior written approval of the other party.

8. Neither party shall disclose to the other any third party's proprietary and confidential information which is in the disclosing party's possession.

B. TERM AND TERMINATION

1. The term during which disclosures may be made under this Agreement shall commence on the effective date of this Agreement as set forth below, and shall expire three (3) months thereafter, unless extended by the parties pursuant to a written notice signed by a duly authorized representative of each party.

2. This Agreement shall be terminable without cause by either party upon thirty (30) days advance written notice given to the other party.

C. GENERAL

1. It is understood by both parties that DIGITAL has performed substantial independent development relating to digital computer technology and associated products, design tools, and interconnect and packaging technology, that DIGITAL both acquires and develops such technology, and that existing or future DIGITAL products may contain ideas or concepts similar or identical to those in MULTIFLOW's CONFIDENTIAL INFORMATION. Subject to any applicable intellectual property rights of MULTIFLOW, this Agreement and any discussions hereunder shall not limit DIGITAL's development or marketing of products or systems involving technology or ideas of a similar nature to that disclosed, nor will this Agreement prevent DIGITAL from undertaking similar efforts or discussions with third parties, including competitors of MULTIFLOW, provided that the confidentiality provisions of this Agreement are not breached.

2. It is understood by both parties that MULTIFLOW has performed substantial independent development relating to digital computer technology and associated products, and VLIW technology, that MULTIFLOW develops such technology, and that existing or future MULTIFLOW products may contain ideas or concepts similar or identical to those in DIGITAL's CONFIDENTIAL INFORMATION. Subject to any applicable intellectual property rights of DIGITAL, this Agreement and any discussions hereunder shall not limit MULTIFLOW's development or marketing of products or systems involving technology or ideas of a similar nature to that disclosed, nor will this Agreement prevent MULTIFLOW from undertaking similar efforts or discussions with third parties, including competitors of DIGITAL, provided that the confidentiality and other provisions of this Agreement are not breached.

3. NEITHER PARTY MAKES ANY WARRANTIES regarding the accuracy of information disclosed under this Agreement, and neither party accepts any responsibility for any expenses, losses, or action incurred or undertaken as a result of the receipt or reliance upon such information. It is specifically understood that NEITHER PARTY REPRESENTS OR WARRANTS that any products shall be developed, manufactured or marketed, or that any future relationships or agreements shall evolve from performances under this Agreement.

4. Nothing contained in this Agreement shall be construed as granting or conferring any rights, other than the limited usage rights outlined in Section A.3 herein, by license or otherwise,

expressly or impliedly for any invention, discovery or improvement made, conceived, or acquired prior to or after the date of this Agreement.

5. A receiving party shall have the burden of proof with respect to proving that it safeguarded CONFIDENTIAL INFORMATION received under this Agreement with the level of care expressed in Section A.2.

6. Sections A.1, A.2, A.3, A.4, A.5, A.6, A.7, C.1, C.2, C.3, C.4, C.5 and C.7 shall survive the termination of this Agreement for any reason whatsoever including expiration of term.

7. This Agreement shall be governed by the laws and regulations of the Commonwealth of Massachusetts.

IN WITNESS WHEREOF, the parties hereto agree that the effective date of this Agreement shall be July 24, 1989.

DIGITAL EQUIPMENT CORPORATION

MULTIFLOW COMPUTER, INC.

By: Samuel Fuller
Duly Authorized Signature

By: _____
Duly Authorized Signature

Name: SAMUEL FULLER
(Printed)

Name: _____
(Printed)

Title: VICE PRESIDENT OF RESEARCH

Title: _____

Acknowledgement And Concurrence

PRUTECH RESEARCH AND DEVELOPMENT PARTNERSHIP III

By: _____

Name: _____
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SAM FULLER
INTEROFFICE MEMORANDUM

TO: Ed Schwartz
Sam Fuller

DATE: 20 January 1986
FROM: Win Hindle
DEPT: Corporate Operations
EXT: 223-2338
LOC: ML10-2/A53

SUBJ: Non-Disclosure Agreement

Attached is a copy of the letter and proposed "Non-Disclosure Agreement" under which we would discuss B.P.'s discoveries in the area of high-speed scientific computing.

Ed, do you think it is O.K, for Sam, myself, and two of Sam's researchers to participate under their proposed Non-Disclosure?

Sam, unless the Non-Disclosure looks harmful, I'd suggest that we include the two researchers who are working in the parallel processing field.

WH:pr

WH:1.86.392

D. J. EGGLETON

TELEPHONE
01-920 7004

(SWITCHBOARD 01-920 8000)



BRITANNIC HOUSE,
MOOR LANE,
LONDON, EC2Y 9BU

CONFIDENTIAL

17th January, 1986

Dear Win,

It was a great pleasure to speak to you again earlier this week, and thank you for your prompt response to our suggestion of a meeting to discuss some developments in the computing field, which have been carried out at our Research Centre here in the UK.

The BP team, at the meeting arranged for 27th January in Maynard, will consist of myself and John McCarroll, whom you met during your recent visit to Britannic House, together with Chris Mottershead, who has led the team which developed the idea we shall be discussing.

I understand that you will be accompanied at the meeting by Sam Fuller, your VP of Research, together with 2 other specialists, presumably from your Consultancy Engineers organisation.

If the BP ideas are of interest to you, and from my knowledge of Digital's product direction I believe that they will be, we shall be seeking to establish a way in which we could go forward with a more detailed evaluation which, in time, could lead to a co-operative arrangement of some sort between our two companies.

As I said to you during our telephone conversation, we shall require the information that we will be giving you to be under a non-disclosure agreement, and I attach a copy of the document we have drawn up.

You may, for your part, wish to tell us of some of your future directions, and we would be prepared to sign a similar non-disclosure agreement in respect of such information.

The details of administration for the visit are being handled by Frank Lawrence, to whom I have already spoken.

We all look forward to meeting you and your colleagues on 27th.

With kind regards,
Yours sincerely,

A handwritten signature in cursive script, appearing to read 'David'.

Mr. W. R. Hindle, Jnr.,
Vice President,
Corporate Operations,
Digital Equipment Corporation,
146 Main Street, Maynard,
Massachusetts 01754, U.S.A.

CONFIDENTIAL &
COMMERCIALLY SENSITIVE

NON-DISCLOSURE AGREEMENT

In consideration of the disclosure to DIGITAL EQUIPMENT CORPORATION (DIGITAL) located at MAYNARD, MASSACHUSETTS, of information relating to the intentions in the computing equipment field of The British Petroleum Company plc (BP), DIGITAL agrees (1) to maintain such information (including all portions and copies thereof) confidential in the same manner as its own company proprietary information is maintained, (2) not to disclose the information (or any portion or copy thereof) to any third party, and, (3) not to use such information (or any portion or copy thereof) for any purposes except for evaluation of the possibility of collaboration with BP in the development of new computer equipment.

However, the obligations of this Agreement shall not apply to any information which is or which becomes generally known to the public by publication or by means other than a breach of duty by DIGITAL or which becomes otherwise available to DIGITAL through legal sources.

Signed on behalf of DIGITAL:-

signature.....

position.....

date.....

Signed on behalf of BP:-

H. J. Conell
.....
G. M. Research Business Development
.....
16.1.86
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