DOCUMENT RESUME

ED 340 355   IR 015 350

AUTHOR   Ols, John M., Jr.
TITLE   Copyright Law Constraints on the Transfer of Certain
                Federal Computer Software with Commercial
                Applications. Testimony before the U.S. Senate
                Committee on Commerce, Science and Transportation.
INSTITUTION   General Accounting Office, Washington, DC. Resources,
                Community, and Economic Development Div.
REPORT NO   GAO/T-RCED-91-91
PUB DATE   Sep 91
NOTE   8p.
PUB TYPE   Legal/Legislative/Regulatory Materials (090)

EDRS PRICE   MF01/PC01 Plus Postage.
DESCRIPTORS   *Computer Software; Computer Software Development;
                *Copyrights; *Federal Legislation; Information
                Dissemination; *Private Sector; Research and
                Development; *Technology Transfer

ABSTRACT
                Under current federal copyright law (17 U.S.C. 105),
federal agencies cannot copyright and license their computer
software. Officials at the Departments of Agriculture, Commerce, and
Defense, the Environmental Protection Agency, the National
Aeronautics and Space Administration, and the National Institutes of
Health state that a significant portion of their laboratories'
software has not been effectively transferred to and used by U.S.
businesses because of the copyright prohibition. Bus:.nesses are
unwilling to invest in documenting and developing commercial
applications for federal software without having copyright
protection. Effective transfer of software is an appropriate goal
that could be achieved by amending the law to provide agencies the
authority to copyright and license computer software with commercial
applications. Such a change, however, should be balanced against the
concern that licensing software to individual companies might exclude
the public's access to this software and related federal databases.
Two options for accommodating these concerns and achieving effective
transfer are available. One would be to amend the copyright law to
allow federal agencies to copyright and grant licenses to computer
software on a case-by-case basis. Alternatively, the Stevenson-Wydler
Technology Innovation Act of 1980 could be amended to allow federal
agencies to copyright and grant licenses to federal software
developed under a cooperative research and development agreement.
Proposed legislation (S. 1581) takes the second approach and should
enhance the ability of federal agencies to enter into collaborations
with U.S. businesses. It would also allow federal researchers who
develop software that is subsequently commercialized under such an
agreement to share in royalties, which would be consistent with
federal policy for rewarding federal inventors. (DB)

ZK

United States General Accounting Office

GAO

Testimony

For Release
on Delivery
Expected at
10:00 a.m. EST
Friday
September 13, 1991

Copyright Law Constraints on the Transfer of Certain Federal Computer Software With Commercial Applications

Statement of
John M. Ols, Jr., Director in the Resources
Community, and Economic Development Division

Before the
Committee on Commerce, Science and Transportation
United States Senate

Mr. Chairman and Members of the Committee:

I am pleased to be here today to present our views on the current copyright law's constraints on the transfer of certain federal computer software and the implications of the proposed Technology Transfer Improvements Act of 1991 (S. 1581) to address them. My statement is based on a report we issued on June 1, 1990 (Technology Transfer: Copyright Law Constrains Commercialization of Some Federal Software (GAO/RCED-90-145)). This report was prepared for the Subcommittee on Courts, Intellectual Property and the Administration of Justice, House Committee on the Judiciary.

Under current federal law (17 U.S.C. 105), federal agencies cannot copyright and license their computer software. Our report examined (1) the extent to which copyright law has constrained the transfer of federal software and (2) the pros and cons of amending copyright law to allow federal agencies to copyright computer software. More specifically, we obtained information from researchers, laboratory managers, and senior officials at six federal agencies on the extent to which the copyright law had constrained the transfer of federal software.[1] These agencies funded about 89 percent of the research and development (R&D) performed at all government-operated laboratories in fiscal year 1989.

I would like to summarize the results of this work. Overall, officials at the six agencies stated that a significant portion of their laboratories' software has not been effectively transferred to and used by U.S. businesses because of the copyright prohibition. Officials at four of these agencies estimated that at least 10 percent of their laboratories' software had potential commercial applications that could have important technological and economic benefits to the Nation.

Effective transfer of this software is an appropriate goal that could be achieved by amending the law to provide agencies the authority to copyright and license computer software with commercial applications. Such a fundamental change, however, should be balanced against the concern that by licensing such software to individual companies, the public's access to this software and related federal data bases might be excluded. In addition, such a change might shift the federal laboratories' mission from basic to more applied research by giving U.S. businesses an incentive to collaborate with federal laboratories. We suggested two options for accommodating these concerns and still achieve effective transfer. One would be to amend the copyright

---

[1]These agencies are the Departments of Agriculture, Commerce, and Defense; the Environmental Protection Agency; the National Aeronautics and Space Administration; and the National Institutes of Health.

1

law to allow federal agencies to copyright and grant licenses to computer software on a case-by-case basis if such protection would stimulate the software's effective transfer and use. Alternatively, the Stevenson-Wydler Technology Innovation Act of 1980 could be amended to allow federal agencies to copyright and grant licenses to federal software developed under a cooperative R&D agreement.

This second option is the approach taken by the proposed legislation (S. 1581) and should enhance the ability of federal agencies to enter into collaborations involving software between federal laboratories and U.S. businesses and thus result in the development of software with commercial applications.

BACKGROUND

Copyrights protect literary and artistic expression by giving authors, for a limited period of time, the exclusive right, among other things, to reproduce and sell copies of their copyrighted work and prepare derivative works. But under 17 U.S.C. 105, the U.S. government is prohibited from copyrighting any of its works, including technical publications, computer software, and data bases. The law's legislative history states that this prohibition is intended to place all works of the federal government in the public domain. Most federal computer software is generated by federal agencies' laboratories as part of their research mission. This software is primarily distributed through the National Technical Information Service (NTIS) and other software distribution centers operated by the Department of Energy and the National Aeronautics and Space Administration (NASA).

In response to the rising concern about the U.S. trade deficit and the ability of U.S. businesses to compete in world markets, the Congress and the administration have taken various actions to strengthen the links between U.S. industry and the nation's research and technology base. These actions include stimulating the transfer of technology from federal government-operated laboratories, which funded an estimated $16.1 billion in R&D in fiscal year 1990, to U.S. businesses. To support this goal, legislation over the past 11 years has authorized federal agencies to (1) grant nonexclusive, partially exclusive, or exclusive patent licenses; (2) negotiate rights to intellectual property under a cooperative R&D agreement;[2] and (3) give federal inventors a share of any royalties from a licensed invention. Although this legislation has facilitated the commercialization of federal inventions, it has not addressed federal computer software--

---

[2] Intellectual property rights result from the physical manifestation of original thought.

2

computer programs and supporting documentation--which currently cannot be copyrighted.[3]

COPYRIGHT LAW CONSTRAINS TRANSFER
OF CERTAIN FEDERAL SOFTWARE

According to federal officials we talked with, making software generally available allows for the adequate dissemination of most of their agencies' software. They noted that their agencies primarily develop research-related software for specific scientific applications related to their missions. This software typically has little commercial application.

However, senior officials from some agencies told us that their inability to copyright and exclusively license computer software has constrained the transfer and use of a certain portion of software that has broader commercial applications. These agencies are the Departments of Agriculture; Commerce; and Defense, including Air Force, Army, and Navy; the Environmental Protection Agency (EPA); NASA; and the National Institutes of Health (NIH). Software constrained by the copyright prohibition includes, for example, artificial intelligence software that could assist doctors in diagnosing diseases or farmers in making decisions about irrigating, fertilizing, or spraying their crops. While these officials did not know exactly how much of their agencies' software was affected by the copyright prohibition, officials for Agriculture, EPA, NASA, and NIH believe that a conservative estimate would be 10 percent of all of their software.

Just as businesses are unwilling to commercialize inventions without patent protection, they are generally unwilling to invest in documenting and developing commercial applications for federal software without having copyright protection. Executives from two businesses that have considered commercializing federal software noted that a business' return on investment is time-sensitive. To prevent competitors from marketing alternative software packages that are potentially less developed and less expensive, their companies would require copyright protection and exclusive rights to federal software.

The officials at the six agencies concerned about copyright law cannot precisely determine the extent to which the government's inability to copyright has constrained their laboratories' efforts to transfer software because cases often do not come to their

---

[3]Our March 1988 report, entitled Technology Transfer: Constraints Perceived by Federal Laboratory and Agency Officials (GAO/RCED-88-116BR, Mar. 4, 1988), identified copyright law as one of four constraints to the transfer of federal technology to U.S. businesses.

attention in the first place. For example, when a business knows
that it cannot copyright government work, it generally does not
seek to license the software or enter into a cooperative R&D
agreement to further develop it. In other cases, senior laboratory
administrators, technology transfer officials, and patent attorneys
never learn of opportunities to transfer laboratory software. This
occurs because preliminary negotiations between private and
government representatives, which occur at lower levels within the
laboratory, fall apart early on because of the government's
inability to copyright and license software.

During our work we were made aware of several specific
instances in which the transfer of software has been constrained
because a business could not protect it by a copyright. According
to an NIH research manager, for example, the government's inability
to copyright has constrained efforts to commercialize a computer
program that would assist dermatologists in prescribing medications
and other treatments for medical problems, such as acne. Because
the software needed to be tested among larger groups of
dermatologists before it could be marketed, NIH sought a business
that would assume this responsibility. An executive for a small
business stated that his company was interested in the software,
but it clearly was an early version that would have to be further
developed before it could be marketed. His company decided not to
try to commercialize the software in part because of the company's
inability to obtain copyright protection, which created uncertainty
over whether it could sufficiently protect its investment from a
competitor who might be able to obtain the same software from NIH
or NTIS. NIH has not further developed the software and has yet to
attract a business partner to commercialize it.

Although Agriculture, EPA, and NIH reported that they have
entered into a total of 472 cooperative R&D agreements as of
September 1991, only 3 of these agreements have a major software
component. In contrast, the National Institute of Standards and
Technology within Commerce recently told us that 59 of the 141
cooperative R&D agreements it has entered into involve computer
software. Overall, the consensus of the agency officials we
interviewed is that the government has had limited success in
developing and commercializing software through cooperative R&D
agreements as a result of the copyright law's prohibition on
copyrighting.

PROS AND CONS OF AMENDING COPYRIGHT LAW
FOR FEDERAL COMPUTER SOFTWARE

According to senior officials at the six agencies concerned
about the copyright law, to improve the transfer and use of federal
software with commercial applications, the government should be
allowed to copyright and exclusively license computer software, and
federal researchers should be able to share in any royalties from
licensed software. With such changes, businesses could protect

4

6

their investment in developing and marketing the software, and federal researchers would have an incentive to work with businesses in developing and documenting the software.

The authority to copyright and share royalties would provide federal computer programmers with opportunities for career, financial, and intellectual recognition similar to those for federal researchers whose inventions are patented. In addition, these authorities could improve public access to federal software because the software might not otherwise be sufficiently developed and documented for general dissemination. Several agency and laboratory officials also noted that copyright authority would further their agencies' missions to improve public health and safety because they could better control the software's quality and distribution.

Some federal laboratory managers and researchers, however, oppose amending the copyright law. In their view, copyrighting and licensing federal computer software could interfere with (1) informal exchanges between federal and university scientists and (2) the government's existing policy of publicly disseminating technical information. In addition, Information Industry Association representatives oppose allowing federal agencies to copyright computer software because agencies might use this authority to either restrict access or give favored access to federal scientific and demographic data bases, such as those at NIH's Library of Medicine or the U.S. Census Bureau.

To accommodate these concerns and still achieve effective transfer, we suggested in our report that the Congress may wish to consider providing copyright authority for software with wider commercial applications that needs further investment to be effectively transferred. We suggested two options for achieving this. One would be to amend the copyright law (17 U.S.C. 105) to allow federal agencies to copyright and grant nonexclusive, partially exclusive, or exclusive licenses to computer software on a case-by-case basis if such protection would stimulate the software's effective transfer and use. If the copyright law were amended, consideration should be given to instituting procedures similar to those required for granting patent licenses (35 U.S.C. 209) to ensure fairness in granting an exclusive or partially exclusive license to a nonfederal entity and diligence by the licensee in commercializing the software. Alternatively, the Stevenson-Wydler Technology Innovation Act (15 U.S.C. 3710a) could be amended to authorize federal agencies to copyright and grant licenses to federal software under a cooperative R&D agreement.

Our second option is similar to the approach proposed by the Technology Transfer Improvements Act of 1991. Its coverage is limited to computer software developed in collaboration with another organization under a cooperative R&D agreement. Although limited in coverage, this approach should stimulate collaborations

5

between federal laboratories and U.S. businesses for developing computer software and, consequently, should strengthen federal technology transfer programs.

The proposed legislation would also amend the Stevenson-Wydler Technology Innovation Act's royalty-sharing section (15 U.S.C. 3710c), as we suggested in our 1990 report, to allow federal researchers who develop software under a cooperative R&D agreement that is subsequently commercialized to share in royalties. This proposed change would provide an added incentive for federal researchers to collaborate with U.S. businesses in developing and transferring computer software, and provide consistency with federal policy for rewarding federal inventors.

Mr. Chairman, this concludes my remarks. I would be happy to respond to any questions you or other Members of the Committee may have.