The importance of implementing the Federal Technology Transfer Act

By Jacob N. Erlich

Over the last 20 years, in several critical industries, there has been a substantial decline in the technological lead the United States holds over other countries. This erosion of the United States' technological advantage may be due to a reduction in the research and development activities of many U.S. companies. As U.S. companies concentrate on increased quarterly earnings, it appears, in many instances, that these increased earnings have occurred at the expense of R&D. Since research and development leads to long term benefits rather than immediate profits, the value of the corporate R&D budget is often overlooked.

On the other hand, many foreign-owned companies place greater emphasis on long term future developments than do American manufacturers. Consequently, they have expanded their research and development facilities. This trend has not taken place overnight, but rather has occurred over many years.

Evidence of such a shift in the U.S. technological lead can be found in the increased number of patent applications filed in the U.S. Patent and Trademark Office by inventors employed by foreign companies. As recently as 20 years ago, approximately 83% of all applications filed in the U.S. Patent and Trademark Office were filed by American inventors, the majority of whom were employed by U.S. companies. In that relatively short period of time, the ratio of U.S. to foreign filed applications has gone from approximately 4:1 to 1:1, so that in 1988, nearly half of all applications were filed by foreign inventors.

Out of the 10 companies receiving the largest number of U.S. patents, seven are now foreign-owned.

Unfortunately, this trend appears to be continuing and predictions for the near future seem to indicate that foreign inventors will soon account for more than half of all patent applications filed in the U.S. As these applications issue into U.S. patents, more and more foreign companies will be able to prevent U.S. companies from making, using, and selling products in the United States based on the newest technology. Out of the 10 companies receiving the largest number of U.S. patents, seven are now foreign-owned. Unless the above trend is reversed, the United States may lose its slim technological advantage over foreign nations, resulting in even larger trade deficits.

Federal labs to the rescue

How can the United States alter this alarming trend? Where can U.S. companies look for help in increasing the production of their research and development departments? The answer to these questions can be found in the utilization of a virtually untapped source of technology available in the United States: the federal laboratory system. This system employs over 200,000 engineers and sci-

JACOB N. ERLICH is chief of the Hanscom Patent Prosecution Office, Office of the Judge Advocate General, Department of the Air Force.

entists working with the newest and most sophisticated technical equipment available anywhere in the world. In addition, the funding of such laboratories is in excess of $20 billion. Stated more succinctly, about one out of every six scientists and engineers in the United States is employed by the federal government. Only recently has this untapped resource been seen as a great value to the private sector.

Both President Reagan and Congress have recognized that many new discoveries and advances in science occur in federal laboratories and that cooperation must take place between these laboratories, universities, labor, and industry to promote these advances in American industry. To encourage private industry to use the technology available from federal laboratories, Congress passed the Federal Technology Transfer Act of 1986 (Public Law 96–480 as amended by Public Law 99–502), now codified in Title 15, Chapter 63 of the U.S. Code entitled Technology Innovation. In April of 1987, President Reagan issued an Executive Order making certain that federal agencies and laboratories assist the private sector by transferring technology from the federal government to the private sector. Under the Act, it has become the responsibility of the federal government "to ensure the full use of the results of the Nation's Federal investment in research and development." Technology transfer is now a responsibility of each laboratory science and engineering professional, and each laboratory director is obligated to assure "that efforts to transfer technology are considered positively in laboratory job descriptions, employee promotion policies, and evaluation of the job performance of scientists and engineers in the laboratory."

As specifically enumerated in Section 3710 of Title 15, Chapter 63 of the United States Code, each federal agency has the authority to "permit the director of any of its Government-operated Federal laboratories (1) to enter into cooperative research and development agreements—with other Federal agencies; units of State or local government; industrial organizations (including corporations, partnerships, and limited partnerships, and industrial development organizations); public and private foundations; nonprofit organizations (including universities); or other persons (including licensees of inventions owned by the Federal agency); and (2) to negotiate licensing agreements under Section 207 of Title 35, United States Code, or under other authorities for Government-owned inventions made at the laboratory and other inventions of Federal employees that may be voluntarily assigned to the Government." Under 35 USC 207, federal agencies are authorized to grant "nonexclusive, exclusive, or partially exclusive licenses under federally-owned patent applications, patents, or other forms of protection . . . "

Technology transfer is now a responsibility of each laboratory science and engineering professional . . .

It is further pointed out in 15 USC 3710 that federal laboratories may "(1) accept, retain, and use funds, personnel, services, and property from collaborating parties and provide personnel, services, and property to collaborating parties; [and] (2) grant or agree to grant in advance, to a collaborating party, patent licenses or assignments, or options thereto, in any invention made in whole or in part by a Federal employee under the [cooperative research and development] agreement . . . " The government will, however, retain a "nonexclusive, nontransferrable, irrevocable, paid-up license to practice the invention or have the invention practiced throughout the world by or on behalf of the Government . . . "

Cash incentives offered

To provide incentives to scientific, engineering, and technical personnel of the federal government, Section 3711 of Title 15, Chapter 63 of the United States Code authorizes the head of each federal agency to develop and implement cash award programs for its scientific, engineering, and technical personnel. Section 3712 states that "[t]he head of the agency or his designee shall pay at least 15% of the royalties or other income the agency receives on account of any invention to the inventor (or co-inventors) if the inventor (or each such co-inventor) was an employee of the agency at the time the invention was made." In addition, the balance of such royalties or other income "shall be transferred by the agency to its Government-operated laboratories, with a majority share of the royalties or other income from any invention going to the laboratory where the invention occurred."

To further ensure the transfer of federally-owned technology to the private sector, the Federal Technology Transfer Act of 1986 establishes a Federal Laboratory Consortium for Technology Transfer. The consortium is a service organization that provides a basic link between the individual laboratory members and the potential users of government developed technology. It establishes programs to encourage technology transfer and seeks advice on the effectiveness of programs dealing with technology transfer. Over 400 laboratories and centers representing over

11 Government agencies are now members of the Federal Laboratory Consortium.

In addition, the Federal Technology Transfer Act establishes Research and Technology Applications Offices (ORTAs) in federal laboratories to prepare application assessments for selected research and development projects and to provide and disseminate information on federally-owned technology. The ORTAs cooperate with and assist the National Technical Information Service, the Federal Laboratory Consortium, and other organizations linking federal laboratories with potential users, as well as providing technical assistance to state and local government officials. They also participate in regional, state, and local programs designed to facilitate and stimulate technology transfer.

It is clearly evident with the passage of the Federal Technology Transfer Act of 1986 that the United States does, in fact, have the means to maintain its technological leadership. Furthermore, since the Act specifically gives special consideration to small businesses as well as preferences to businesses located in the United States (which agree to manufacture in the United States), it is evident that the intent of Congress is to use federally sponsored technology as an important resource for further stimulating U.S. technological development. The implementation of this Act will directly benefit U.S. citizens by providing more jobs and reducing our dependence on foreign imports. Once again, the United States will be able to compete more successfully in the development and production of high technology products.

It is clearly evident with the passage of the Federal Technology Transfer Act of 1986 that the United States does, in fact, have the means to maintain its technological leadership.