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The new year offers a timely opportunity for policy-makers in Washington and Tokyo to address a major obstacle to improving the long-term relationship between the world's two greatest economic powers -- the imbalance in the flow of technology between the U.S. and Japan. Vastly more American technology is transferred to Japan than vice-versa.

Both the U.S. and Japan have benefited greatly from trade relationships in the postwar years, but the tidal wave of protectionist sentiment now sweeping across the U.S. caused by massive trade deficits threatens that productive relationship. In the U.S., discontent caused by a 1985 trade deficit with Japan that is expected to reach a record \$50 billion -- with the related loss of an estimated 270,000 manufacturing jobs -- makes it likely that federal officials, frustrated by their inability to find more constructive remedies, will resort to protectionist trade measures.

But these are only symptoms of the root problem, which to a considerable extent is the huge asymmetry in technology exchange. This has produced what the Japanese call the

"boomerang effect", in which relatively low-cost U.S. technology flows to Japan only to be returned to the U.S. in the form of low-priced products.

While the level of Japan's basic research has increased to some extent, the Japanese are far short of performing their fair share of research to add to the world's store of knowledge. They have been overcoming their lack of adequate basic research by simply buying research results or participating in the funding of university research in the U.S.

There has been a particularly aggressive pursuit of U.S. technology by Japan in microelectronics and computers, and America's technological leadership is being seriously challenged in these critically important fields.

According to a recent study by Martha Caldwell Harris of the U.S. Office of Technology Assessment, Japanese industry bought some \$763 million worth of electronics technology (patents and knowhow) from the U.S. in 1981, while sending us only \$170 million in return. This nearly five-to-one advantage in technology exchange accounted for two-thirds of Japan's total technology purchases, leading to the study's conclusion that technology acquisition "lies at the heart of Japan's international trade strategy."

Three years ago, when I suggested consideration of a system that would help assure more equitable transfer of technology between the two countries, including the same degree of access to Japanese research laboratories by U.S. scientists that Japanese scientists enjoy with our university and government laboratories, I was accused of being a racist. But as the preponderantly "one-way street" syndrome of technology flow to Japan has become better understood, so has the need for a more equal flow of technology.

This was confirmed once again by a recent Commerce Department report of the Japan Technology Evaluation Program on Opto- and Microelectronics, which concluded that Japan has been "aggressive in acquiring, improving and implementing technologies whose conceptual aspects were developed in the U.S." The report also noted that in optoelectronics, in particular, a technology important to future generations of supercomputers, the Japanese have made major, original contributions, and these will increase in the future.

A first step toward solving the basic research and technology problems could be to convene a U.S.-Japan summit conference on technological innovation in 1986. Just as the world's two greatest military powers met in Geneva last year to explore ways of reducing the risk of nuclear war, so could the world's two greatest economic powers meet to focus on the achievement of a fair sharing of the burden of basic research, equitable technology exchange and other problems inhibiting innovation in either country.

Before such a meeting is held, however, Congress should give U.S. negotiators additional authority by including language in the omnibus trade legislation now being considered to make equitable technology exchange a priority negotiating objective of the U.S.

New methods of managing research and technology development and transfer will be required to achieve solutions to problems in these areas. One promising approach already exists for obtaining a more equitable flow of technology between the U.S. and Japan -- and other countries as well. It is the newly-formed Midwest Technology Development Institute (MTDI), which is a non-profit consortium of ten midwestern states that have banded together to coordinate a program of cooperative technology development within the region and between the Midwest and other countries.

Specifically, MTDI will seek to expand technological cooperation among Midwest universities and industry to increase the efficiency of research and to extend technological cooperation to include universities in foreign countries. It will also provide a mechanism to increase the availability of technology to industry, especially small businesses, and achieve an equitable transfer of technology between the Midwest and foreign countries.

While the MTDI approach was designed with the Midwest in mind, it could just as easily be replicated in New England or other regions of the country. In fact, the strength and vitality of

the New England economy, with its tradition of successful entrepreneurship, make it an ideal candidate for such a regional approach.

The mechanism for transferring technology is a separate for-profit corporation called the Midwest Technology Trading Corporation, which will be established this year. It will maintain an inventory of technologies and promote their transfer through the establishment of joint ventures, exchanges and licensing.

Since the Japanese are organized to continue to benefit from easy access to U.S. technology, they will want to maintain the status quo. Therefore, gaining their acceptance of whatever approaches are chosen to eliminate technology inequities will require persistent, strong support, not only by the principal players in innovation, federal and state governments, universities and industry, but the general public as well.

In the final analysis, the major issue in U.S.-Japan relations 40 years after World War II is what kind of a relationship we will have 40 years hence. Unless we act soon to correct the asymmetry in technology that has characterized our recent relationship, current frictions over trade deficits and economic competition will persist and even increase, with damaging consequences to both our countries and the rest of the free world as well.