

A New Outlook on Technology

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Japanese engineers draft blueprints for rotary-engine automobile. Sharing technology can bring mutual benefits.

There once was a time, not so long ago, when the United States was acknowledged leader of the world in technological know-how. The export of U.S. technology aided in large measure the economic resurgence of Western Europe and Japan. In recent years, however, the growth of productivity in the U.S. has declined, and its competitiveness in world trade has eroded. Is the solution to restrain our export of technology, putting more emphasis on exporting finished products?

While this may have short-term benefits, a long-term solution is needed. Some specialists in the field of technology transfer are saying that the answer is for the United States to place increasing emphasis on importing foreign technology. The over-all improvement in international technological cooperation would bring the world a step closer to a global economy based on mutual assistance.

This policy may be hard for some to swallow, at first. The shift in the technological leadership to foreign countries, and the existence of useful technologies abroad may not be fully realized yet. Also, many institutions place a high value on originality and inventiveness rather than on the application of technology developed by others.

But they have only to look at the very changes they have helped bring about in foreign countries to realize the value of importing technology. Japan is an outstanding example. A hundred years ago, Japan set as its national goal the modernization of industry. After World War II, the goal was to reconstruct the national economy, and in both cases Japan found that it had to rely on importing foreign technology to acquire the needed technological know-how in a short period of time. The importation of foreign technology became a government policy. Domestic research and development was directed towards improving, extending, or adapting the imported technology to hasten the introduction of new products. For example, in electronics, the basic building blocks -- solid state circuits and integrated circuits -- were imported from the U.S. then improved upon to bring about successful innovations. Japan has allocated an increasingly larger share of its total GNP (Gross National Product) to research and development, and that expenditure is specifically intended to spur economic growth.

Most economists maintain that technological change is the best way to bring about a gain in productivity. Productivity growth in the United States decreased from the yearly average of approximately 2.5 percent from 1870 to 1965 to about half of this figure in the years 1965 to 1971. Furthermore, productivity growth in this country has slipped below that of Western Europe and Japan since 1950. Lower productivity means higher costs. This is one factor contributing to our loss in international trade competitiveness. Emphasis is being placed on better use of technology, but so far there has been more attention paid to how we can improve the utilization of domestic technology.

We are missing the point. The faster economic growth of the leading industrialized nations of Europe and Japan and their rapid upgrading of technological prowess can be attributed to the importing of foreign technology. The same could be true for the United States, once we recognize that there is something of value to import. That's one step. The U.S. has benefited from foreign technology in the past -- the turbojet engine, for example, was imported from Great Britain -- and it is time we make a concerted effort to tap it.

Purchasing patent rights and manufacturing rights would not help the U.S. trade balance initially, but this would soon be offset by the savings in research and development costs which would otherwise be needed to duplicate the technology. In addition, this would give us more flexibility to use what funds are available to complement foreign technology.

This is especially important when we realize that total research expenditures in the U.S. have been declining. Already-developed foreign technology involves lower risks and significant time-savings as well. Using existing technology can also shorten the period of time required for an innovation and allow for a larger number of innovations to take place. These considerations plus the fact that further refinements on imported technology may make it possible for the U.S. products to become more competitive on the international arena, compensate for the initial adverse effect on the U.S. trade balance. Technology in the past has been concentrated on space and defense work, but it needs to be tied more closely to economic needs in the U.S. Companies operating in the United States which have succeeded in competing successfully relying mostly on imported technology provide further proof of the potential importance of foreign technology here. An example is Akzona, a fibers company which showed a 100 percent increase in sales from 1968 to 1973. This company, by coupling European and American technology, has been able to compete effectively in the U.S. specialty fibers market. Because it operates in the U.S., its success must be attributed to its use of European technology rather than to lower labor costs, advantageous tax laws, or more favorable government policies often associated with foreign business success.

The need exists to focus more on economically relevant technological developments abroad and utilize information wherever possible to promote technological innovation in this country, economists say. They point out that companies should view foreign technology not in terms of its deficiencies and limitations but from the standpoint of how it could be modified or improved to provide a better product or how it could be adapted to meet an entirely new market.

God created man with a creative nature. But man's creative nature is only a potential until he does something about it. To express this capacity fully and to bring about God's original ideal of creation (and therefore man's highest ideal) -- the Kingdom of Heaven on Earth -- man must constantly improve the methods and conditions of his creativity. This is why we need innovation.

If there had been no fall man could have had all along a mutually beneficial economic system and a high standard of living for all. Since the fall, progress has occurred because of man's basic desire to fulfill his purpose of creation and because of God's dispensation to restore the original world of goodness and, in economics, a fair system of production and distribution.

New technological developments can lower costs and create better products. The manufacturer is interested in his profits, but in the long run mankind benefits. Restoring man's environment and bringing about an ideal system don't happen overnight because of a new invention. But the means become available.

"In the same way that the predominantly outward flow of U.S. technology in the past has helped improve the economy and technological competitiveness of recipient countries, the development of a technology link feeding back into the U.S. could help to upgrade U.S. capabilities and technological competitiveness," says Sherman Gee, head of the Technology Transfer Office of the Naval Surface Weapons Center in Maryland. He continues, "This improvement of the U.S. posture could in turn contribute toward an increasing movement of technology back overseas, thus further upgrading foreign capabilities and stimulating the return flow of technology to the U.S., and so on. In this manner, a more mutually beneficial exchange of technology among the industrialized nations might be developed."

When the world of God's original intention is restored, men will live and prosper together. One great world society will be formed. The international cooperation that Mr. Gee and others are calling for is another sign that we are rapidly approaching the time when that world will be a reality, no longer a dream.