

INSTITUTING ECONOMIC COOPERATION

By William Norris

During the past five years, there has been a substantial increase in state-supported activities to expand economic development to improve competitiveness and create new jobs. Such activities include the funding of technology development, establishment of research parks, providing assistance and capital to small business, improving education and training and stimulating economic development in distressed communities.

Unfortunately, a common characteristic of state programs is the lack of coordination, both within and among states. As a result, resources are wasted through duplication. More important are the missed opportunities for gains in efficiency through cooperation.

A glaring example is in the emerging field of biotechnology. Some 35 states have established centers of excellence, research institutes or other types of organizations for research and development in biotechnology. There is very little collaboration among them. A second example is in advanced manufacturing technology, where some twenty states have centers engaged in advanced manufacturing technology. Again, there is little interaction. A third costly example is the proliferation of small organizations in every state, engaged in one or more aspects of small business assistance and usually operating in isolation.

If these programs are to realize their potential, there must be

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a substantial increase in public-private technological cooperation.

Two means of accomplishing this are a vast increase in large-scale technological cooperation — in both research and development and manufacturing — among industry, universities and government, and greatly expanded cooperation at the community level to assist small business.

Technological cooperation

While a cooperative approach to research and development holds great promise, a number of problems plague the formation and successful implementation of large-scale cooperative programs.

One is the lack of understanding of the benefits to be derived from large-scale cooperation among companies, universities and government.

Another is the strong competition among universities for research funding from the federal government. Universities simply are not used to working together.

Corporations, moreover, must weigh the high risk of R&D and the reality that benefits from R&D cannot be confined to its investors. Economists estimate that the rate of return to society

Cooperative organizations can help business capitalize on new technology

from expenditures in R&D is twice that of an individual company. Consequently, from the standpoint of society, companies underinvest in R&D.

The solution to these problems is federal legislation providing a substantial percentage of start-up funding during the early stages of such enterprises. Without it, the required level of large scale cooperation will not be reached. Once research results start to flow, federal funding can be reduced, and tax credits used to help equalize benefits between the public and private sectors.

The flagship of large-scale technological cooperation for research and development is MCC, the Microelectronics and Computer Company in Austin, Texas. MCC commenced operation in early 1983 with 11 participating companies, mainly from the U.S. computer and semiconductor industries. This number has grown to 20. The state of Texas is providing substantial support for MCC, and 85 universities are participating in the research and development effort.

MCC is generating substantial benefits: each dollar a participating company invests in MCC research programs produces research results costing almost five dollars.

Every industry needs one or more cooperative efforts of this type. A five-to-one leverage in creating base technologies would

provide a much needed boost to American innovation.

Advanced manufacturing: Cooperative R&D is of little use if we cannot quickly convert the results through the use of advanced manufacturing technology. In the United States neither large nor small companies are using such technology fast enough.

Reasons for slow utilization of advanced manufacturing technology include the low level of technical capability in most manufacturing companies, the dearth of engineers in the field of advanced manufacturing, the substantial cost of the equipment, computer software and training, high risk, and a return on investment well below what is traditionally acceptable.

Aside from the risk and return considerations, most smaller and medium-sized companies simply don't have the necessary capital.

To overcome these barriers we need a nationwide network of computer-aided design and computer-integrated flexible manufacturing centers. Companies would pay to use the design and manufacturing services of the regional facilities; no investment in the facilities would be required. The network would be financed by a combination of federal, state and private funds.

Given access to that kind of facility, U.S. companies, even small companies, could compete over a wide range of products

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with the largest companies worldwide.

Such an effort is being planned. The Midwest Technology Development Institute (MTDI), a consortium of midwestern states, is developing the Advanced Integrated Manufacturing Service Center Partnership (AIMSC).

Assisting small business

Particularly important is greater cooperation at the community level to assist small business — historically, a major source of innovation and new jobs. We need a small business innovation network to better manage technology for use by small companies.

The pivotal element of such a network would be a cooperation office, a non-profit corporation to provide management and professional assistance to small businesses. The cooperation office would be under the control of the community, and financed by state and local government, private contributions and client fees. The permanent staff would be small, but the cooperation office would draw on a volunteer advisory panel of scientists, engineers, marketing specialists and executives for the specific expertise required to assist small businesses.

The cooperation office would help small businesses acquire advanced technology from both foreign and domestic sources. The United States is not making use of foreign technology nearly to the extent that other countries do, especially Japan. Even acquiring technology from U.S. universities and government laboratories is often very difficult for small companies.

The cooperation office also would try to expand foreign trade by helping to establish joint ventures between small companies in the U.S. with those in other countries.

The office, moreover, would aim to increase the role of smaller colleges, including community colleges, in innovation. These institutions have substantial capabilities that are grossly underutilized. In addition to education and training, they have the ability to perform applied research and consulting to industry.

A small business innovation network would require seed capital. Equity financing is often not available for new companies during their initial formation and early development stages from banks, venture capital funds and

other conventional sources because of the higher risks involved. A seed fund, in contrast to the cooperation office, should be a for-profit operation in order to operate most effectively and attract needed capital.

Finally, the network would include a business center, also a for-profit corporation, that would provide various facilities and services to assist the startup and growth of small businesses. Economies of scale would make it possible to provide occupants of the center with facilities of much higher quality and considerably lower cost than any small business would be capable of obtaining or providing for itself.

Local cooperation, federal help

There is a proliferation of organizations in communities concerned with economic development: county economic development commissions, city economic development corporations, chambers of commerce, county extension offices, small business development centers.

Each of these organization is doing some good, but falling far short of what needs to be done because of lack of resources. Cooperation — or consolidation of groups under the control of the local community — would result in the more effective use of resources.

Building the momentum to achieve these objectives is best accomplished at the state and local level. But the federal government has a critically important role.

It must provide a substantial percentage of start-up funding to encourage technology cooperation ventures.

Congress should enact legislation providing seed money to facilitate the transfer of technology, primarily to small businesses, from federal and university laboratories.

Federal legislation also is needed to provide partial funding to encourage the unification of community organizations and full implementation of small business innovation networks.

Bringing about needed technological cooperation, which has not been traditionally part of our culture, will certainly not be easy.

The country which is able to first implement such a program will have a great competitive advantage. Let's be sure that country is the United States of America. □