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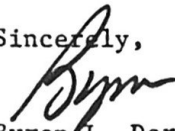
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Dear Colleague:

I recently had the opportunity to host in my district a conference on "Long-term Financing for North Dakota Businesses." While the seminar focused on state business development efforts, the featured speaker discussed the wider agenda of building a competitive U.S. economy. I would like to call your attention to the theme of remarks presented by Mr. William C. Norris, Chairman Emeritus of Control Data Corporation, which were outlined in a recent article in the New York Times.

Sincerely,


Byron L. Dorgan
Member of Congress

THE NEW YORK TIMES, FRIDAY, AUGUST 28, 1987

Become Competitive? Here's How

By William C. Norris

MINNEAPOLIS — The issue of how to improve American industrial competitiveness in global markets has become a prominent theme in public policy debate. "Competitiveness" is so popular in the political arena that some 5,000 bills were introduced in Congress last year to address the problem. It has also been discussed in countless speeches, conferences, task forces, news articles, scholarly studies and popular books.

Despite all this activity, very little real progress has been made and few significant programs have been advanced to respond effectively to the crisis, especially in the critically important area of manufacturing.

Substantial research and development has been under way in our universities and Government laboratories for years to develop advanced automated equipment and computer-integrated design and manufacturing technology. As a result, the United States possesses the most advanced manufacturing technology in the world and, through ongoing research, will likely maintain that position for many years.

Ironically, except for a handful of larger companies this advanced technology is not being widely used in manufacturing. Our advanced technology largely remains in laboratories, while our foreign competitors — especially Japanese companies — are capitalizing on it.

There are many reasons why we are so slow in utilizing advanced manufacturing systems. They include the low level of technical capability in most manufacturing companies; a dearth of engineers in advanced manufacturing; the substantial cost of equipment, computer software and training, and a high risk and low return on capital that is well below what is traditionally acceptable. Aside from the risk and low return considerations, most small and medium-sized companies

William C. Norris is chairman emeritus of Control Data Corporation.

simply don't have the money.

How can the United States respond to this formidable array of barriers? We need to establish a nationwide network of regional computer-aided design and computer-integrated manufacturing centers. These facilities would perform manufacturing on a service basis, allowing companies to pay for the manufacturing service without having to pay the full cost of the initial investment to build the center. Each company would have access to the center through a work station at its own premises that would be connected by telephone.

In addition to computer-aided, design-engineering and manufacturing services, education and training could be provided. A small or medium-sized company could use the center's facilities initially and later decide to install selected robotic equipment on its own premises. Larger companies would be licensed to replicate the entire facility.

Initially, 10 regional centers would be optimum, built over seven to eight years. At a cost of about \$80 million for each center, the estimated \$800 million total cost would be financed through a combination of Federal, state and private funds. A large percentage of the initial funding would have to be Federal money, given the necessity to move rapidly on a large scale and because of the high risk and uncertainty involved.

Once full operation was reached, the manufacturing centers would be taken over by the private sector and operated as for-profit businesses. At that time, the number of centers could be expanded.

While such a program is critically important to a broad range of manufacturing companies, it has a unique value for small, cash-strapped companies, which lack an advanced manufacturing capability.

A similar situation occurred in the early days of the computer industry. Small companies needed access to the computing power of large computers. However, during that period, only large companies, major universities and Government agencies could afford the initial investments,

which often exceeded \$1 million.

The answer was to establish computer centers that provided access on a service basis for small companies. Today, as the cost of computers has decreased dramatically and their power has increased, every small company is able to afford a computer

Build regional computer centers.

that costs a few thousand dollars and that can handle all its needs.

The same scenario could take place in advanced manufacturing. During the next 15 to 20 years, the cost of hardware and software will be significantly reduced, and small companies will be able to afford their own systems. Meanwhile, the gap in the availability of this essential capability could be bridged if states move rapidly to form consortiums that would establish regional advanced manufacturing centers. Such a program would require a much greater degree of cooperation among states than has so far existed. But since benefits would be spread over a region, rivalries between states could be avoided.

While Federal legislation is essential to get the required amount of Government financing, such a significant program, initiated and managed by the private sector, would surely be viewed favorably by Congress. This approach would provide the means to manufacture high quality, low cost products in a minimum amount of time.

When the goal was reached, we would finally have done something to arrest the dangerous decline of American manufacturing, and industry would once again have the tools to be competitive in global markets.