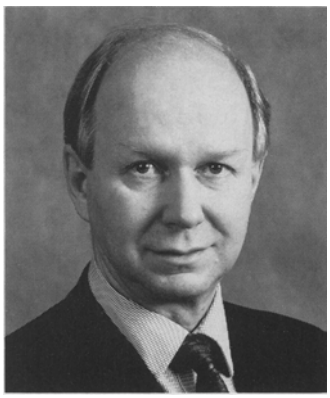
Commentary



Over the past four decades, production of manufacturing industries in the Organization for Economic Cooperation and Development (OECD) countries increased fivefold. Service industries grew at an even faster rate. As a result, factory production, which used to account for more than one third of the gross domestic product (GDP) of the European OECD countries, dropped to less than a quarter. Such development was then widely considered a sign of sound and natural progress.

In some countries, however, as for example in Finland, in spite of a higher than average growth of factory production, the percentage of GDP fell so low that a sort of re-industrialization has become necessary. Manufacturing industries simply became too small to serve as a locomotive for the service and public sectors. Under such circumstances, the importance of R & D becomes ever more pronounced.

According to the "Diamond Model" of Michael E. Porter of Harvard Business School, the national advantage in competition is determined by the capacity of a country for innovation. Corporate clusters denote certain key products, special factors of production, related products and services, as well as customers. The various components of a cluster support one another and create a multiplier effect.

A good example of such a cluster is the forest industry group of Finland. In addition to mass products like standard newsprint, it includes high-grade papers, advanced integrated processes, supplies of materials, machinery, processes, equipment, and automation systems. Many of the products of this cluster are in the field of high technology.

The Diamond Model with its clusters elucidates the relationship, feedback, and interaction among different fields of industries. It provides a background for the focusing of R & D efforts, which is a common problem of ever-growing importance.

I am sure that readers of ASM journals worldwide can identify corporate clusters in their own individual countries. Those corporate clusters form the framework within which technological innovation is carried forward in each country. Materials performance, in one aspect or another, is a common theme that is always present, in every technology development effort.

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