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## Changes in Industrial Structures and the Entrepreneurial Sector

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# **Changes in Industrial Structures and the Entrepreneurial Sector**

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## **1. Changes in industrial structures**

Industrial structures in developed countries are currently undergoing historic changes.

After 1990, the market economy expanded on a global scale, ushering in "the era of global mega-competition." The dissolution and transformation of socialism and the economic development of Asia and Latin America have made "global optimal procurement" a reality. As a result, production by developed nations has flowed steadily out of the countries, creating situations described as the "hollowing out" of industries, or "de-industrialization." Meanwhile, existing industries are maturing, making the creation of new industries an urgent need. Unless new industries are created, unemployment rates soar. This is why developed countries have adopted policies that support the creation of new industries.

## **2. Significance of the entrepreneurial sector**

As J. A. Schumpeter has pointed out, "new men and new firms" give birth to "new industries." In other words, new industries are the result of entrepreneurship. To stimulate the creation of new industries, we must strengthen the entrepreneurial sector. With the advancement of sophisticated information technology, segmentation of markets, and dramatic changes in demand and technology, large companies are fast losing their advantages. This makes entrepreneurship in small companies even more important.

After 1980, at the initiative of entrepreneurs, numerous new companies emerged in the U.S., leading to the creation of new industries. The movement accelerated after 1990, when industrial clusters were created and expanded. An example of a cluster is Silicon Valley, where the information communications industries are the base of R & D.

A growing number of specialized companies divide their work through networks. By sharing information, companies collaborate while competing with one another, allowing the industrial cluster as a whole to adapt to changes. While maintaining their core production, these clusters

rely on "global optimal procurement." Collaboration among Silicon Valley industries is illustrated in the diagram. As can be seen, these specialized companies operate under a "flexible specialization" setup. They integrate various functions centering around R & D — engineering, and production of investment goods, high-function devices and components. They rely on "global optimal procurement" to obtain most of the components.

In Silicon Valley, new companies are sprouting up in rapid succession. Some have become extremely successful and were listed on NASDAQ only a few years after starting up.

Recently, industrial clusters have been formed in Taiwan, earning the country the nickname, "PC island."

### **3. Changes in entrepreneurship in Japan**

After World War II, Japan based its economy on catching up with industrialized nations and emulating their systems. Flexible mass production systems were developed, and processes continually underwent innovation. Labor was divided between large and small companies, with the latter, developing technology in the production of components and half-finished goods. It is no exaggeration to say that the international competitiveness of Japanese industries was supported by smaller companies.

Japan is a forerunner in the international economic community, and product innovation has become crucially important for most Japanese companies. Meanwhile, a growing number of large companies are relocating their production to other countries, and, as a result, existing industrial clusters are disintegrating rapidly. Smaller companies are closing down in growing numbers, and fewer businesses are starting up, which means that the number of smaller businesses relying on production technology is decreasing.

Despite all this, we are seeing a gradual increase in the number of smaller companies that carry out product innovation. Twenty-five years ago, we named these companies "venture businesses." Not only are venture businesses increasing steadily, some are actually prospering. The number of companies that have gone public in the over-the-counter market during the year has exceeded 100 for the last four years. At present, more than 800 such companies offer their stock.

Since April 1995, MITI, for its part, has provided assistance to small companies engaged in creative activities. The number of companies receiving such assistance exceeded 2,000 during the past two years. This indicates that development companies that have characteristic technology are being launched all over Japan.

As shown, there is a steady increase in the number of small companies in which entrepreneurs initiate product innovation. The ideal scenario is for these companies to tie up with existing small, process-innovative companies to recreate industrial clusters in Japan.

#### **4. Industrial clusters in developed nations**

Revival of industrial clusters in Japan does not imply a return to what they were before. The industrial clusters we are about to see in developed countries are different from those formed during the industrial age. The major characteristic of these clusters is that they will operate development bases of R & D suited to this period of global and post-industrialized structures. As such, they can no longer hope to be self-conclusive. Below are some of the specific features of these industrial clusters.

##### **(1) Bases of R & D**

In developed countries at the forefront of global business activities, operating and other costs are generally high. Thus, the only industries that these countries can operate are those with added value. Industries must step up research and development to add high value. The core function they should integrate is R & D.

These bases narrow their R & D to final products, high-function components, and investment goods. Engineering industries that support the development of investment goods also play an important role.

Competition among bases is expected to intensify from now on. Each base must promote its unique specialties and differentiate itself from its rivals.

This cannot be done without cooperation between industries and universities. More research universities must be formed to increase such cooperation.

##### **(2) Global optimal procurement**

While investment goods and high-performance components can be produced within an industrial cluster, a large number of devices and parts must be procured from all over the world. Clusters can no longer remain self-conclusive. Even high-performance components developed within the cluster may be produced overseas. So while "merit of contact" may exist within a cluster, industrial clusters rely also on global networks. Global linkages are being formed between Silicon Valley and Taiwan, India, and other countries.

### **(3) Division of labor within the cluster**

Large companies with a pyramid organizational pattern — integrating different functions vertically — will no longer dominate a cluster. To cope with technical progress taking place at dizzying speeds, specialized companies must share information with one another and act swiftly as a unified cluster. Agility is called for. Inside the cluster, companies must compete and cooperate with one another simultaneously.

Networking inside the cluster will be individual-oriented. Loyalty will be directed not toward the company, but toward the regional community, increasing mobility within the region.

It should be remembered that these clusters must be open to the rest of the world. Unless people gather from all over the world, clusters cannot hope to form a "global" base.

### **(4) Foundation of manufacturing**

Although relying on global optimal procurement, clusters must have firmly- established manufacturing foundations. A minimum of functions related to basic manufacturing must be integrated. Not only should the clusters integrate technology and skills for using machinery, they must also integrate technology and skills for manufacturing such machinery.

Unfortunately, not one developed nation has successfully integrated such basic technology and skills on a continual basis. The U.S. relies on Japan and Germany, while clusters are being disassembled in these two countries.

With more people receiving higher education and opting for white-collar jobs, developed countries are seeing a dramatic drop in the number of young people choosing blue-collar jobs. These young people simply do not find production sites attractive places to work. Many people have proposed a variety of solutions for this problem but as yet none have succeeded.

Companies tend to transfer their basic manufacturing technology and skills to developing countries. The only way to maintain such technology and skills, therefore, may be through linkages with countries in East Asia. In this case, companies have the choice of inviting people from these countries to educate and train them, or providing such education and training locally. Here again, new industrial clusters must be open to people from other countries.

### **(5) Entrepreneurial climate**

Innovation should be an everyday occurrence inside new industrial clusters. Entrepreneurs will play a central role in developing the cluster. Once an entrepreneurial climate is formed, more new companies will be launched, and more companies will increase technical assistance. In other words, entrepreneurship fosters entrepreneurship.

Entrepreneurs contribute to the development of regional business. As such, even if regional

business stagnates, entrepreneurs work to restore it. They play a pivotal role in rebuilding regional communities.

We see the emergence of civic entrepreneurs who intermediate in the rebuilding of economies and regional communities in the public interest. These and other entrepreneurs work to solve different regional issues such as environmental issues and welfare concerns.

# Industrial Network of Silicon Valley (1997)

