

## **Nature of Technology Transfer**

Technology transfer is the movement or flow from one organization or country to another organization or country of technological expertise, experience, data, information, designs, prototypes, materials, innovations, software, and trade secrets of a specific technology.

We may primarily consider two types of transfer of technology. Vertical transfer of technology and horizontal transfer of technology. In the Japanese automobile, we will discuss each of these scenarios.

One of the biggest industries in the world is the Japanese automotive industry. Since the 1960s, Japan has been in the top three countries in the automobile industry. Japan's automotive industry expanded rapidly from the 1970s to the 1990s, when it was focused both on domestic use and global export, and in the 1980s and 1990s, overtook the U.S. as the manufacturing leader with up to 13 million cars produced and major exports each year.

Japan wanted to re-build its economy after the Second World War. Japan realized that imported innovations were the most productive path to achieving recovery. Japan then learned much of its techniques from the USA and Europe. They then innovated technology and developed new innovations for the automotive industry and came as the world's leading manufacturer of automobiles.

Japan is more likely to pass some of its most advanced technology to developing countries, unlike other developed nations. In particular, the Japanese transfer of technology to the automotive industry has played an important role in the growth of the manufacturing industry in Thailand. The Japanese production system, which is reflected by the Toyota production system, has contributed to the achievement of highly skilled Japanese companies, and is related to the growth of Japanese human capital.

The growth of the Japanese automobile industry in the 1980s was conspicuous for more than the speed of the increase in production volumes. The rapid expansion of overseas production and the integration of overseas operation into a global production network and the accompanying expansion of integrated global supply networks also attracted attention. With the regards to the product architecture and organizational capabilities, automotive industry has characteristics of integral architecture and its technical innovation is relatively moderate but requires wide experience and coordination with other members and processes.

The extension of Japan's global production networks to Asian countries in particular NIEs and ASEANs, in particular Thailand, Malaysia, Indonesia, the Philippines and Vietnam, has therefore been studied and cases of technology transfer have been assessed.

With the example of the Hero Honda joint venture, we can see the horizontal technology transfer scenario.

Hero MotoCorp is the single largest two-wheeler motorcycle company in the world. Japan's Honda Motor Company and the Hero Group entered a joint venture in 1984 to set up Hero Honda Motors Limited. Japan, a joint venture between the Hero Group of India and Honda Motor Company, has not only produced the world's largest single two-wheeler company, but also one of the world's most profitable joint ventures.

Hero Honda became the first company in India during the 1980s to show that it was possible to drive a car without polluting the roads. The business launched new-generation motorcycles that set industry standards for low-emission and fuel thrift. Today, more than 20 million Hero Honda twin wheelers are treading Indian highways.

Here through a joint venture, the Japanese automotive industry moves its technology to India. They exchange with India their technology, experience, knowledge, technical skills, and automotive industry information. And in early 2001, with the skilled, well-trained Indian engineers, technicians, and labor force, they became the world's largest two-wheeler company.

We can see the technologies of Japanese automobile industry transferred to all over the world and the whole almost every country use those technologies to their automobile industry success.