



tories, reserve raw materials and pay wages when the proceeds from sales have not yet been collected. Less capital will result to lower investment, less output, and slow modernization. Capital turnover will help use funds effectively. In the economy, a specialized tool takes shape to supply capital and implement capital turnover, that is the banking system. Those who own large funds and make fast capital turnover will have chances to make rich.

Knowledge-based economy: Rich due to fast application of new knowledge and knowledge turnover

In fact, both agriculture and industry need new knowledge to enhance production. In the 19th century, it took 70 years on average to develop

HCMC ENTERS KNOWLEDGE ECONOMY BY COMBINING NATIONAL POWER, ITS ADVANTAGES WITH IT ACHIEVEMENTS AND OPPORTUNITIES OF GLOBAL MARKET

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Agricultural economy: Rich due to large land area and crop rotation

Every production process needs similar conditions such as land, factories, labor, equipment and machinery, materials, energy, knowledge concerning production, and information about product consumption. Regarding farming production, land plays an important role because the growth of trees demands soil. No land, no cultivation. More output requires intensive cultivation and full utilization of land. Therefore, in traditional agriculture, only those who own a great amount of land and know to rotate crop can make rich.

Industrial economy: rich due to huge capital and capital turnover

In industrial production, money is very significant and used to purchase equipment and machinery, build fac-



a new invention into a technical solution and a new product in the market. In early 20th century, it took 30 years. In the 1990s, new knowledge was applied to manufacturing new products of higher competitiveness. This made innovation a special condition for production and competition. The manufacturers were unnecessarily inventors tens of years or hundred years ago. If they knew how to apply new inventions and soon turned out products, they could surpass the inventor. Japan is an example. The Japanese has purchased patents from the U.S. and other countries (they need not basic studies) but they manufacture new items before American and others. The situation is now different. Because the time to apply new inventions to make new products is only 3 years or less, the owner of new invention and knowledge does not want to sell their property in this span. As a result, the non-inventors face a few opportunities to create new competitive products. Currently, to win in the global competition, the enterprises must be able to soon absorb the world knowledge, create new knowledge and apply it to production and life. The more intellect people, the more competence of innovating, applying new knowledge and producing new goods and technologies. Only those who own new knowledge, not more money, and are capable of fast application in larger areas, can win in the competition. New knowledge becomes an important source of capital in competition and development. The special instrument to disseminate new knowledge is the system of education, from universal to tertiary education, as well as the national information network and Internet. The method to create new knowledge is scientific studies carried out in institutes, enterprises, hospitals, schools, offices and families.

The agricultural economy grows slowly due to limited amount of land and crop rotation. Those who have no land become hired hands. Because new knowledge is created too slowly, new land, not knowledge is the precondition for development in the short run (tens of years).

In the industrial economy, new knowledge is crucial to production. However, the speed of knowledge renovation remains slow, the time of its utilization for new technologies and products long. The factor affecting most production expansion is capital. The total amount of capital in a country is restrained. Those who have large capital may make rich

and become the boss. Because the capital that can be mobilized in a country or in the world is relative to the economic growth rate which often reached between 3% and 9% per year. As a result, although the industrial economy grows faster than the agricultural one, its growth rate remains below 10% annually.

In the current period, the knowledge-based economy brings new features of quality. Different people cannot use the same amount of land and money at the same time. Conversely, the knowledge can be shared to millions of people. They can use it to create new products and technologies simultaneously. The economy will see a boom and its growth rate will exceed the threshold of 10%.

Development of information technology (IT) - new resource for every country

The world IT development in the past 50 years has led to three important achievements as follows:

- The processing speed of computer is increasing, but its size and price lower. In 1946, a computer with capacity of 7,000 operations per second, covering an area of 1,800 m², was sold for US\$500,000. At present, a computer making billions of operations per second, covering 0.1 m², is sold for US\$500 (that is, down 1,000 times). The operation speed will double after 18 months on average, and price down one-third after 12 months. The price decline helps increase the number of computer users, not only in rich countries, but also in poor ones. There are now some 450 million personal computers and 6 billion microprocessors are used in the world, and the figure is expected to rise to 1 billion PCs and 10 billion microprocessors by 2005.

- Computers become an effective instrument to spread knowledge and information to every person (national network, Internet, city network, local area network), and to train people everywhere (distant training, electronic library). They are also used in automation, health care, scientific research, etc.

- A kind of new demand and new market occurs increasingly in the world: the market of IT-related services. They include designing operating programs, websites, network operating systems, software concerning state management, business administration, distant training, distant disease treatment, economic forecast and video games. The market grows so fast that the local workforce can-

not meet the market demand. The U.S., Germany, and many other developed countries are currently short of hundreds of thousands of workers in IT-related fields annually. The import or lease of foreign experts becomes prevailing. Vietnam can take part in this global market. The world IT sales registered US\$528 billion in 1995, 755 billion in 1997 and are estimated at 1,000 billion.

The HCMC path to a knowledge-based economy

As a socio-economic hub of the country, the HCMC has more advantages to enter the knowledge economy than other provinces. It obtains 20 universities and colleges, 40 institutes, 60 scientific research centers, a number of computers 8 times higher than the country's average, Internet users 7 times, telephone lines 3.5 times; HCMC is capable of pioneering in IT application and development. The following measures can be taken to restructure the city economy toward the knowledge one.

1. Developing the telecoms network, especially the backbone network and the specialized database network (for urban management, enterprises, education and training, scientific research, health care...)

2. Actively applying IT in Government administration, business and production, education, scientific research and opening new services such as online marketing, online business registration, e-commerce, distant training, distant disease treatment, traffic forecast, environment forecast...

3. Modernizing the education sector from universal to tertiary education and postgraduate training; fulfilling universal education from first to ninth grade by 2002, from tenth to twelfth grade by 2010; and establishing the lifetime learning support system.

4. Building the cooperation mechanism among the Government, enterprises and scientific agencies to make the best use of the city scientific potential for the national modernization and industrialization in conditions of a poor country.

5. Setting up and developing the software industry into a spearhead one of the city in early 21st century, especially promoting the role of overseas Vietnamese in this field and perfecting the legal framework for IT evolution.

6. Developing the program of training the IT human resource for the city and other provinces' demand and for export.■