

Korea Wired for Knowledge

By Alvin Toffler

The earlier shift from agriculture to industry in Korea, as in all other industrializing nations, required a new physical infrastructure.

Smokestack countries typically need to expand their energy production.

They need more and more roads and streets as cars multiply. They need more miles of railroad track. They need a better postal system. They need elementary telephone services. They need bigger harbors and airports.

To move beyond an industrial age economy, countries need to install the advanced electronic infrastructure needed to carry immensely increased loads of data, information and knowledge. They need a tremendous diversity of computers, communication options, networks of many kinds and universal Internet access.

Korea has already begun to roll out just such an information infrastructure, while working to bridge the digital divide. In fact, Korea has made one of the most impressive and successful investments in information infrastructure anywhere, with 15 million PCs, 44.1 telephone lines per 100 people, and 18.9 million IP addresses (as of December 2000).

The nation's estimated 22.3 million Internet users make up the fourth largest Internet market, after the United States, Japan and Germany. More than a third of South Korea's 47 million people are logging onto the Internet.

A January 2001 Nielsen survey found South Koreans to be the most avid Internet surfers in the Asia-Pacific region. This assessment is based on the number of web sessions per month, time spent online, number of sites visited, and total page views.

Korea has also moved into IT manufacturing, most dramatically in chips but also, more recently, in personal computers, mobile phones, and handheld devices. Efforts such as the "MIC White Paper" and "CyberKorea 21" demonstrate Korea's seriousness in planning for a transformation to the Third Wave.

_ We've Made A Good Start

Yet much remains to be done. Korea's 9.25 trillion won software industry remains much smaller than such gross figures suggest, since much of what is counted is actually the sale of foreign software from companies like SAP, Oracle, Microsoft and Hewlett Packard, and installation and repair of hardware and networking equipment.

It is estimated that, overall, the IT industry in Korea is two to three years behind that in other developed economies, and even more in the case of

optical network core technology. By contrast, with respect to mobile Internet technology, the gap is small _ only one to two years.

Further development of Korea's physical infrastructure will be necessary, especially because today's rapid rates of technological advance make installed systems incompatible with newer developments at a faster and faster pace.

In the industrial era many parts of the infrastructure _ streets and highways, for example _ remained in place and remained useful for many years. They were typically expanded, by adding more of the same. By contrast, the new Third Wave infrastructure is dynamic, growing and continually adaptive to new requirements.

But having made a good start at installing the new infrastructure _ partly by inventing and in part by reinvention _ Korea must now make this vast physical infrastructure pay off for the entire Korean economy. And here Korea should not make the same mistake Japan made _ one that is costing it dearly today.

Japan's post-war development of a powerful Second Wave economy was remarkable. Success, however, is dangerous.

Just as the complacent Americans failed to make early use of their own innovative technologies, the Japanese also became complacent. They over-focused on export-oriented manufacturing. They failed to diffuse these technologies adequately throughout the economy, and especially in finance and services. In short, the Japanese started converting from a Second Wave to Third Wave economy but stopped half way.

By 1993, America's auto and semiconductor industries had regained the technological lead. Foreign banks like Citibank are now buying up their financial institutions and introducing technologies that will bring it to the level of the manufacturing sector. This is painful for some Japanese to watch, but it will strengthen the economy and at some point they may well own their financial systems again.

_ The Central Task Now Is The Diffusion Of IT

One crucial key to success is the degree to which the new, Third Wave, infrastructure in Korea is used in every business and sector of society. A partial survey by Toffler Associates in 2000 found that over 50 cities, regions, or countries, are striving to clone Silicon Valley. There was a time when this made sense. But that time is now over.

The competitive situation has been transformed, with Costa Rica and India selling software to the U.S., while India buys software from Vietnam. IT production zones can no longer guarantee the same remarkable benefits that early movers such as Singapore achieved.

Just as in the case of steel or cars, when everyone follows the same strategy, it is no longer as competitively advantageous as it once may have been.

The race today is different. The competitive edge is more likely to go to countries with a well-developed information infrastructure that use that infrastructure innovatively throughout the whole society, rather than narrowly in a few specific industries or places.

Korea, having installed much of the necessary infrastructure, must now complete the job, and ensure that it is utilized effectively, not merely to amortize its cost, but to raise wealth production capability in all sectors of society. The central task now is the diffusion of the power of IT.

Several policies can help speed widespread, productive usage of the new cyber infrastructure.

In Second Wave, industrial, economies universal telephone service is a precondition for economic development. But in the Third Wave, traditional voice telephone service is not enough. Because knowledge-based economies are increasingly differentiated, complex and fast changing, they require far more diversified communication services.

Companies require customized systems for the near-instantaneous exchange of data, voice, images, sounds and other messages. No single source can be expected to supply the entire economy with all these varied services at low cost.

That is why, around the world, starting with the break-up of the American Telephone and Telegraph Company in 1984, the communications revolution has led to de-monopolization and increased competition. The objective is to provide diversity of service while keeping costs low enough for consumers to adopt new technologies.

In the words of Harvard University's Center for International Development: "Effective regulation should promote competition, ensure affordable pricing for consumers and maximize telecommunications access in the community."

Korea has taken important steps in these directions. The World Trade Organization Agreement on Basic Telecommunications will require further movement. Next steps could include increasing the independence of the regulatory body, facilitating interconnections between providers, and opening up the local loop to more competition.

It is also important to eliminate regulatory barriers that separate various sectors and prevent the collaboration of phone, cable television, and satellite companies.

The broadest public use of the Internet and the new communication services is in the national interest.

This is the fourth in a series of articles based on excerpts from a paper published by well-known futurist Alvin Toffler and an independent advisory group, Toffler Associates, at the request of the Korean Information Society Development Institute (KISDI) about the emergent global economy of the 21st century and Korea's place in it. -ED.