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Viewpoint Series

The Spread of Information Technology and Change in Society

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August 2003

The phrase “information technology revolution” seems to be less and less in evidence of late. Could it be that the IT revolution was just an illusion?

With the emergence of personal computers and advances in memory and chip technology, all forms of computer hardware have become more advanced and less expensive, transforming the quality of our lives. For example, global positioning system (GPS) technology-originally developed for military use-is now being put to use in civilian car navigation systems. In Japan at least, the car navigation system seems to have become a standard feature. Similarly, some commonly available desktop computers have now surpassed erstwhile supercomputers in terms of computing power.

Any discussion of the technological evolution of IT, or of the social changes that this evolution has engendered, should cover not only the benefits of the IT revolution but also the dangers-that is, both the light side and the dark side. Examples of the numerous facets of the beneficial nature of IT include rapid advances in hardware technology, the sweeping elimination of the barriers of time and distance, and the codification and enhancement of human action, conduct, and knowledge. In addition, the virtual space of the Internet permeates our daily lives and provides countless new services. In the recent war in Iraq, GPS-enabled missiles and bombs were fed information on specific target locations and exhibited a high degree of accuracy. Advances in IT thus effect changes not only in society but also in the military sphere-by minimizing hardships for innocent civilians caught in war zones.

On the other hand, there are many aspects of the dark side of IT that need to be addressed. For example, while the computerization of various processes has resulted in greatly increased functionality, erroneous utilization of these systems-human error-could have far-reaching and thus far unimagined effects on society. Even within recent memory, there has been substantial loss in some cases, such as system failures involving major banking and air transportation systems in Japan. Specific hardware and software platforms have gained tremendous market share, and as an industry, IT has been a huge success. Accompanying this success, however, are various security risks. Technologies such as GPS are increasingly being used in illegal activities as well. In September 2002, when Japanese authorities salvaged a North Korean spy ship off the coast of Amami Oshima island in Kagoshima Prefecture, they found a GPS system on-board.

The incredible advances in IT have mitigated the limitations of both time and space to a great degree, while at the same time creating a new problem of anonymity. Unfortunately, this lifting of the constraints of time and space is just as effective in the netherworld of crime and terrorism. In the virtual world of the Internet, computer viruses abound, and systems are hacked constantly. Undeniably, these problems represent a serious threat to a society that is dependent on computers.

However, the dangers inherent in IT will not go unchecked forever. New and innovative countermeasures are rapidly being created to combat computer viruses and unauthorized system access; thus, cases resulting in harm to society are not expected to increase indefinitely. In December 2002, IIPS hosted an international symposium entitled “The IT Revolution and Security Challenges.” At this symposium, one participant suggested that “As time passes and countermeasures improve, malicious Internet activity will come to be perceived as no more than ‘noise.’” While in the short term there may be all kinds of problem, there is merit in the view that one day, if steady progress is made, these problems will indeed come to be regarded as simply “noise.” Another possibility that cannot be ignored is that personal values may well change dramatically as information technology spreads. The roles played by IT in the Korean presidential election and in the recent war in Iraq have shaken the very foundations on which our expectations are based. The structure of society itself will have to become more flexible-if it does not, local and national government and the nation itself cannot help but lose touch with the real world, as recent events have shown. In the current era, the state of this nation-the product of many years of development-is changing with unprecedented speed due to the power of IT.

The author is not completely pessimistic about the progress of technology; solutions to the problems will assuredly be found. Moreover, the author's belief is that the problems with IT lie in the inflexible nature of the individual rather than in the evolution of the technology itself. As personal information and other information travels through cyberspace, the problems of protecting information and insuring its ethical use must be addressed. The technology itself is easy enough to use; however, in terms of what the future holds, among the important issues which must be addressed are the beneficial use of technology, education that includes the ethical use of technology in an IT-based society, and the development of personal skills. It is vital that the negative aspects of IT be addressed and that ways to overcome them be found.

This article commenced with the assertion that the term “IT revolution” is rarely seen anymore. Yet, this is not because the trend itself has disappeared. Rather, the fact is that IT-like air and water-has become an integral part of everyday life, and thus no longer seems out of the ordinary.