

Director's note

The convergence of biotechnology, information technology and nanotechnology is currently happening in ways as never before. Convergence of these three technologies is anticipated to drive a revolution in how people live and work. In the developed countries, scientists, technologists and policy makers have already recognized the potential of converging technologies to transform every sector of the economy. Quite evidently, these technologies are rapidly transforming the existing firms as well as creating new firms from the existing industry base.

Major advances in biotechnology are converging with information technologies to create new opportunities in the emerging fields of bioinformatics, biomaterials and biochips. At the same time, nanotechnologies are being recognized as a foundation for advances in both bio and information technologies. The commercialization of nanotechnology holds the potential to revolutionize chip and computer manufacturing while creating a new foundation for further developments in information and biotechnology.

With converging technologies, scientists now find new ways and approaches to integrate what are currently very diverse areas of research - converging technology platforms, physical and mental performance, human-machine interface, human cognition and communication, learning, work efficiency, and many others. On their own, each of these aspects offers rather limited potential for advanced applications. When combined in converging technologies, their potential is enormous and may provide revolutionary advancement in human longevity, quality of life, learning and productivity.

The market potential of converging technologies is substantial. It offers massive opportunities for the development of new value-added products, services, convenience, efficiency and the expansion of consumer choice. Intense competition in the market is also regarded as a driving force for convergence of modern technologies. The ever growing need for new and effective technology solutions causes a market pull towards convergence, in parallel to the technology push initiated by the technology development.

Convergence of technologies, services and applications, is still an evolving concept. It encompasses a combination of opportunities and challenges for the industry, market, regulators, policy makers, and society at large. This has been a visible trend in the telecommunications industry since the late 1990s. The sector is currently undergoing a transformation because of convergence of a vast array of different types of technology to perform very similar tasks. Tremendous developments are taking place to evolve synergistic combination of voice, data and video onto a single network. These previously separate technologies are now able to share resources and interact with each other creating new efficiencies.

This issue of Tech Monitor focuses on the scope of development and application of converging technologies and discusses the emerging issues associated therewith.