Handbook of Science and Technology Convergence

- Analyses the convergence of technology and science for the benefit of society in an innovative, highly useful reference work
- Explores the connections between nano-, bio-, information- and new-technologies based on cognitive and social sciences
- Offers scientists and engineers practical advice on how to cooperate with other scientific fields
- Advises on the socio-technical environment in which inventions and discoveries will benefit humanity

Scientists and engineers have long been aware of the tension between narrow specialization and multidisciplinary cooperation, but now a major transformation is in process that will require technical fields to combine far more effectively than formerly in the service of human benefit. This handbook will catalog all the ways this can be accomplished and the reasons it must be. Nature is a single coherent system and diverse methods of scientific and engineering investigations should reflect this interlinked and dynamic unity. Accordingly, general concepts and ideas should be developed systematically in interdependence, with cause-and-effect pathways, for improved outcomes in knowledge, technology and applications. At the same time, industrial and social applications rely on integration of disciplines and unification of knowledge. Thus, convergence is both a fundamental principle of nature and a timely opportunity for human progress. This handbook will represent the culmination of fifteen years of workshops, conferences and publications that initially explored the connections between nanotechnology, biotechnology, information technology and new technologies based on cognitive science.