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The Changing Face of Nanotechnology

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Summary

Nanotechnology R&D has changed its research focus, typical outcomes, the domains of industrial relevance, its public perception and governance since 2000 when it was suggested as a 21st century key development in science and technology besides IT and modern biology. This trend has already powerful implications in electronics as well as in other areas of relevance from treating cancer to energy conversion. The presentation will outline important changes between 2000 and 2008 and possibilities for global governance of nanotechnology. In this context, several aspects of nanotechnology R&D development in U.S. related to setting the vision, NNI partnership with electronic industry, and increased funding for environmental, health and safety aspects will be discussed.

The U.S. National Nanotechnology Initiative (NNI) is a long-term program announced in January 2000 that coordinates 26 departments and independent agencies with a total budget estimated at about $1.5 billion in fiscal year 2008.

Advances at the nanoscale are leading to new understanding of nature and manmade things, and an increased ability to restructure matter at the atomic, molecular and supramolecular levels. With an estimated $7 billion nanotechnology R&D annual investment worldwide, industry has exceeded government funding of about $5 billion in 2007. The rudimentary capabilities of nanotechnology today for systematic control and manufacture at the nanoscale are envisioned to evolve in five overlapping generations of new nanotechnology products and manufacturing processes with different areas of R&D focus. We estimate the global market for products that incorporate nanotechnology increases about 25 percent per year.