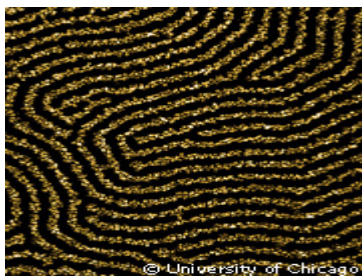


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EU funded project develops a roadmap for nanotechnology applications

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The objective of the NanoRoadMap (NRM) project, funded under the Sixth Framework Programme (FP6) is to carry out a long term (ten year) forecasting exercise to provide coherent scenarios and technology roadmaps for nanotechnology applications in three important industrial fields: materials; health and medical services; and energy.

Understanding, observing and controlling the properties of matter with lengths of between 1 and 100 nanometres is a new challenge for the research community and industry. One nano-metre is equal to one billionth of a metre, and is about the size of a small molecule.

Nanotechnology is therefore resulting in a manufacturing revolution, changing the face of industry and, as a general-purpose technology, often combined with non-nanotechnology applications, has a significant impact on almost all industries and areas of society. It could offer better built, longer lasting, cleaner, safer, and smarter products for the home, for communications, for medicine, transportation, energy, agriculture and food, and for industry in general.

Some of the areas covered by the project are:

- Nanomaterials, which include lightweight, tough nanocomposites, novel nano-coatings that are dirt-, bacteria- and corrosion-repellent, carbon nanotubes and their almost limitless applications, and the uses of nanoparticles for new products and packaging.
- New and improved medical diagnostic products and techniques for cancer, genetic diseases that allow the detection of disease at much earlier stages and with lower, safer concentrations of contrast agents. Medical supplies and devices such as active ingredients in burn and wound dressings, medical implants, drug coatings and targeted drug delivery systems.
- Nanotechnology and processing, storing and disseminating information: displays that are as light as paper, textiles that monitor health, products that communicate with each other, lightweight and flexible electronics with anti-counterfeit, information display and tracking applications, and for energy, cheap solar collectors for powering everything from water purifiers to global positioning systems.

But these enormous benefits are coupled with potential dangers: molecular nanotechnology will allow the rapid prototyping and inexpensive manufacture of a wide variety of powerful products with the potential to disrupt many aspects of society and politics. In the military field, minute but powerful weapons and surveillance devices are a possibility, as is environmental damage provoked by the extensive use of inexpensive products.

The control of these technologies could lead to abusive market restrictions, or create a demand for a black market almost impossible to stop as, due to the reduced size, small nanofactories could easily be smuggled, and potentially dangerous. This means that, in order to gain public favour, in addition to technological aspects, attention must be paid to any societal implications deriving from the surge of nanotechnology.

NanoRoadMap is funded under the 'nanotechnologies and nano-sciences, knowledge-based multifunctional materials and new production processes and devices' thematic priority FP6. The NanoRoadMap consortium gathers eight research and industrial partners from the public and private sectors from Italy, Germany, the UK, France, Spain, the Netherlands, Finland, the Czech Republic and Israel, all of whom have a long history of disseminating information, contacting research institutions and companies (large and small), and assisting them in their quest for innovation.

A two-step approach has been adopted for the project. First, following a thorough survey of the available information, a general report was prepared for each of the three sectors covered by the project. It consolidates of the activity going on in Europe and in other parts of the world, as well as assessing existing roadmaps and forecasts. Then, based on this picture and to avoid the roadmaps becoming too

general, the topics that were deemed of the highest priority in each of the three fields were identified. The current roadmapping exercise focuses on 12 selected themes. The project also involves the dissemination of the roadmaps.

NRM ends in December 2005, and the results of the roadmap exercise, based on surveys of 35 countries and opinions of experts from all over the world, will be presented at the international conference in Cologne, 'NanoSolution 2005', and at eight national conferences in the partners' countries.

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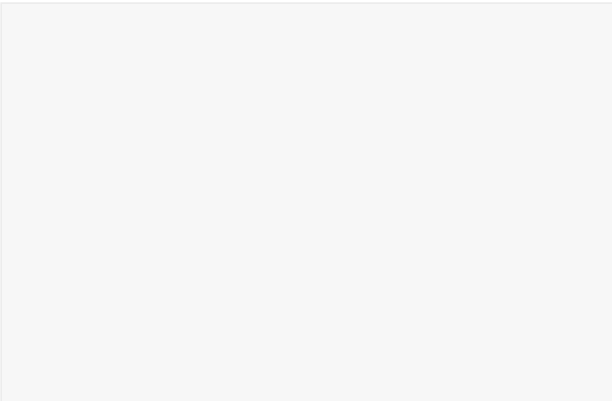
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