

A satellite-style image of the Earth, showing the continents of Africa, Europe, and parts of Asia and the Americas. The oceans are a deep blue, and the landmasses are shown in shades of green, brown, and tan. The image is taken from a high angle, looking down at the planet.

Nanotechnology Takes a Deep Breath... and Prepares to Save the World!

Global Nanotechnology Funding in 2009

Cientifica Ltd

April 2009

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Every year Cientifica undertakes one of the world’s most exhaustive searches into the global funding of nanotechnologies in order to identify not only where the Dollars, Euros and Yen are being spent, but also to gain an unique insight into the trends shaping tomorrows applications.

This white paper gives an overview of the key numbers, which we believe to be the most accurate available anywhere. For more information please visit us at www.cientifica.com or contact tim.harper@cientifica.com

Nanotechnology Government Funding in 2009

By the end of 2008 nearly \$40 billion had been invested by governments in nanotechnology research. And in 2009 alone global government funding of nanotechnologies will hit \$9.75 billion. Nonetheless our annual survey of global nanotechnology funding shows government funding slowing down with growth in spending of only 9.3% from 2008 to 2012, compared with the 130% increase recorded from 2004 to 2008.

However, from 2012 we see funding picking up again, posting an increase of 16.7% from 2012-2015.

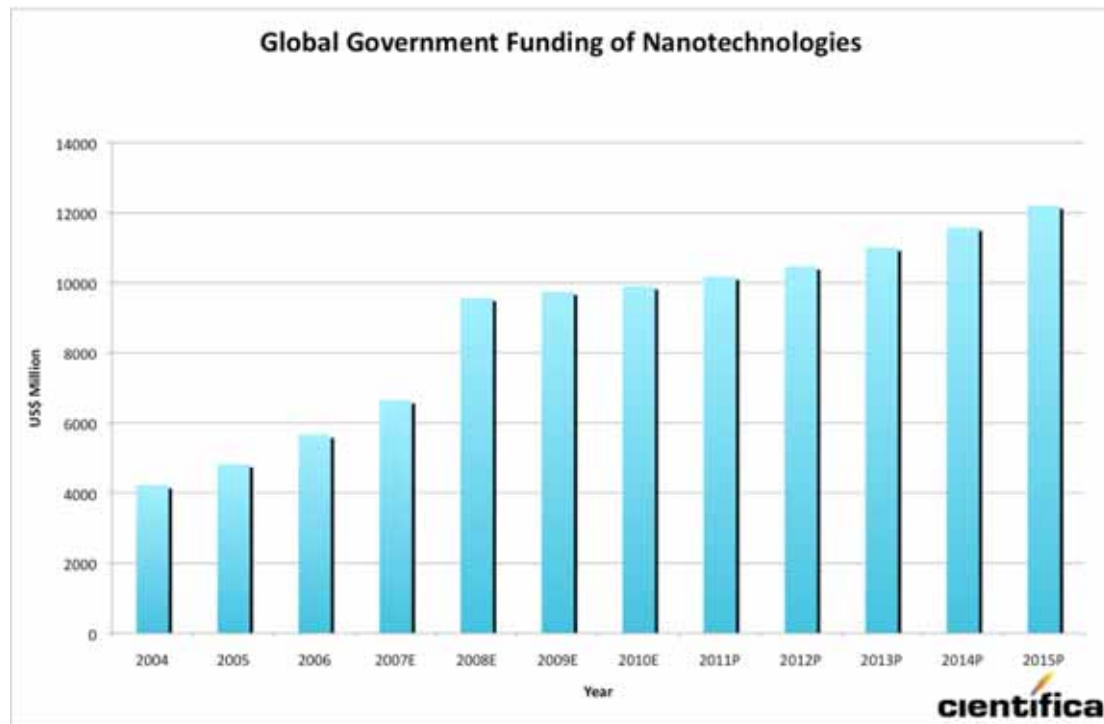


Figure 1 Evolution of Global Nanotechnology Funding 2004-2015 (Source: Cientifica)

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Funding Seeking Applications

The impending slow down is not due to the current recession, but a repositioning of nanotechnology from a pure research discipline to an applied one. After ten years of intense funding with forty billion dollars being spent in the last five years, nanotechnology is now becoming a useful tool in our armoury of 21st century technologies rather than a little understood area of science requiring further exploration.

As a result, governments around the world are shifting the balance of pure to applied research, and looking for nanotechnologies to provide solutions to national and international problems, from dependency on foreign oil, to improving public healthcare while reducing costs. The forthcoming UK nanotechnology strategy is expected follow the US lead and to focus not on nanotechnology for nanotechnology's sake, but on mapping its applications to key grand challenges such as climate change and the effects of an aging population.

For example, in the figure below from a presentation given by Christos Tokamanis, who has taken over as Head of Nanotechnology for the European Commission from Renzo Tommelini, the emphasis that has been placed on driving applications.

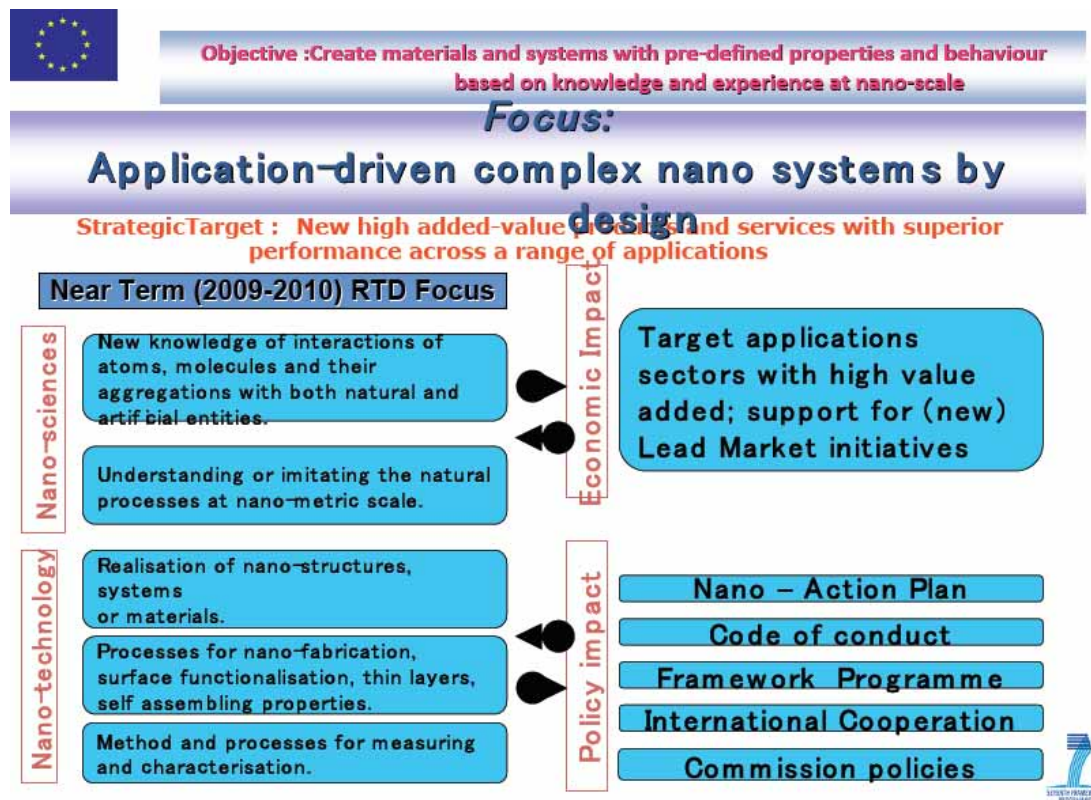


Figure 2 The New Focus of Global R&D

Also in countries like India public nanotechnology funding, under the direction of C.N.R Rao, has historically remained very focused on academic research, and was resistant to

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spinning out research into commercial products. But now Rao has reportedly changed his position on this and is beginning to see academic research as a source of revenue.

This shift is also reflected in the recent comments in December 2008 of Vice-President of India, M Hamid Ansari, who called nanotechnology the transformative force in the future. He stressed that public funding for scientific and technological R&D is premised on the promise of enhancing public welfare and economic development.

The same focus change is reflected in the other exploding economy of China in which the Deputy Director of the NCNST Prof. Chen Wang has been quoted publicly as saying that the main aim of the nanotechnology initiative in China is to create and support fledgling industries in areas related to energy, environment, and health, and at the same time maintain a focus on fundamental research.

Impact of the Economic Crisis

Anyone looking for evidence of governments cutting back on nanotechnology spending will be disappointed – at least until 2013. Government funding for science is set over long timescales, typically funding is allocated for between three and six years, making it less susceptible to economic pressure. In addition science and technology funding in Europe has been steadily rising for the past decade in order to attain a 3% of GDP R&D spend to match the US economy.

The current recession has also changed the pre existing status quo where companies had no need to look for new and radical technologies when old ones such as the internal combustion engine still worked quite well. The sudden collapse in consumer spending has eroded the business model of many established companies and given them a new stimulus to embrace new, nanotechnology enabled technologies such as batteries for electric vehicles, or face decline at ever increasing speeds.

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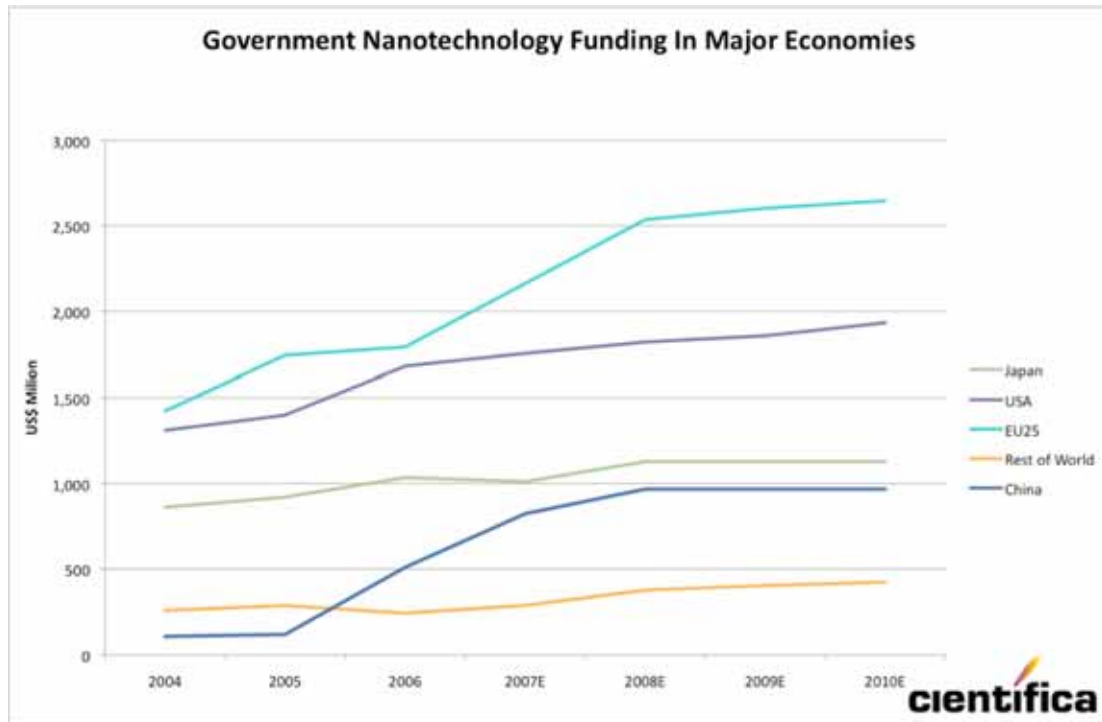


Figure 3 Government Nanotechnology Funding in Major Economies (Source Cientifica)

A New World Order?

In 2004 the three major economic regions, the EU, Japan and the United States, who together made up 85% of global R&D spending, dominated government funding. By 2009 this has shrunk to 58% of global spend, and is predicted to shrink still further (though not in dollar terms) reflecting the emergence of countries such as China and Russia as major nanotechnology players.

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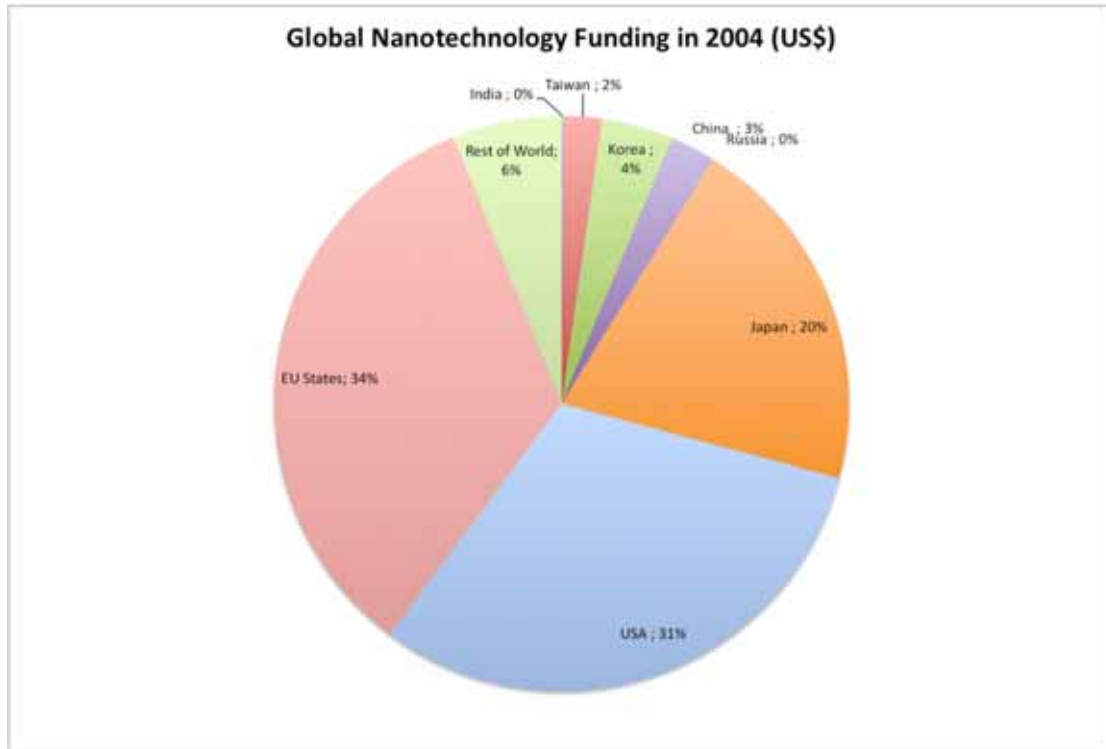


Figure 4 Global Nanotechnology Funding in 2004 in US Dollars (Source: Cientifica Ltd)

However, in terms of raw funding, measured in US Dollars at today’s rates, the United States has slipped to third place in the global funding rankings, falling behind the EU states¹ and Russia.

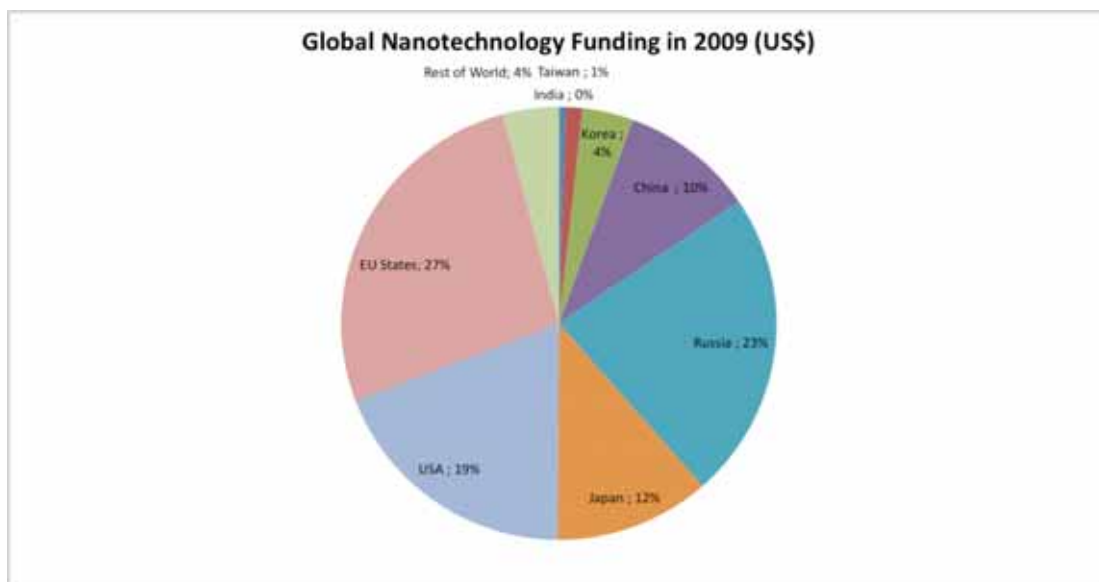


Figure 5 Global Nanotechnology Funding in 2009 in US Dollars (Source: Cientifica Ltd)

¹ EU figures are generated from the combined state funding of all 27 EU member states plus the funding from the European Commission via Framework 7 and other programs

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Also when the numbers are corrected for purchasing power parity (PPP) the US is third equal with China, illustrating the rapid ascendance of the developing economies of China and Russia.

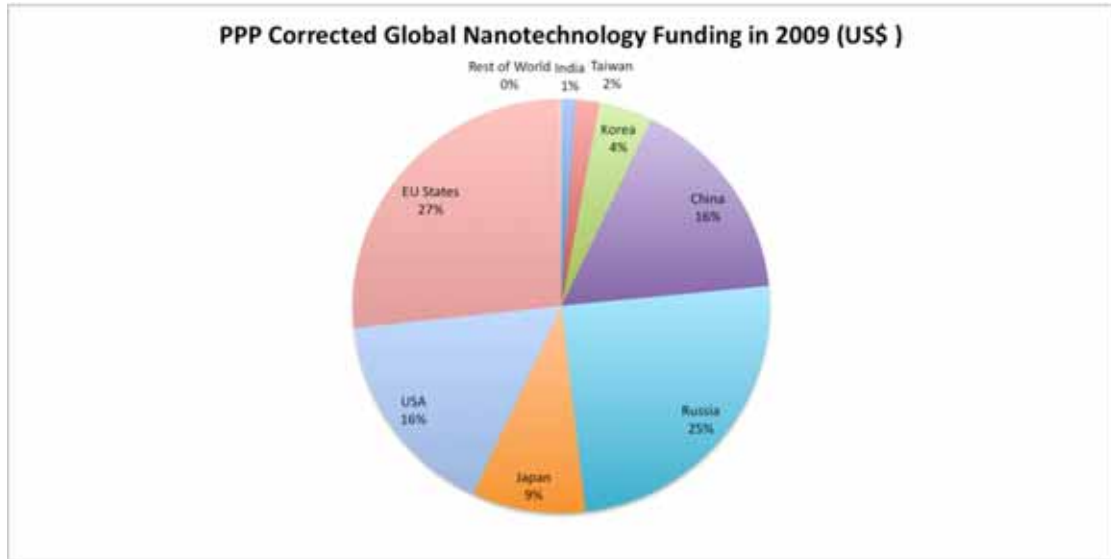


Figure 6 Global Nanotechnology Funding in 2009 in US Dollars corrected for PPP (Source: Cientifica Ltd)

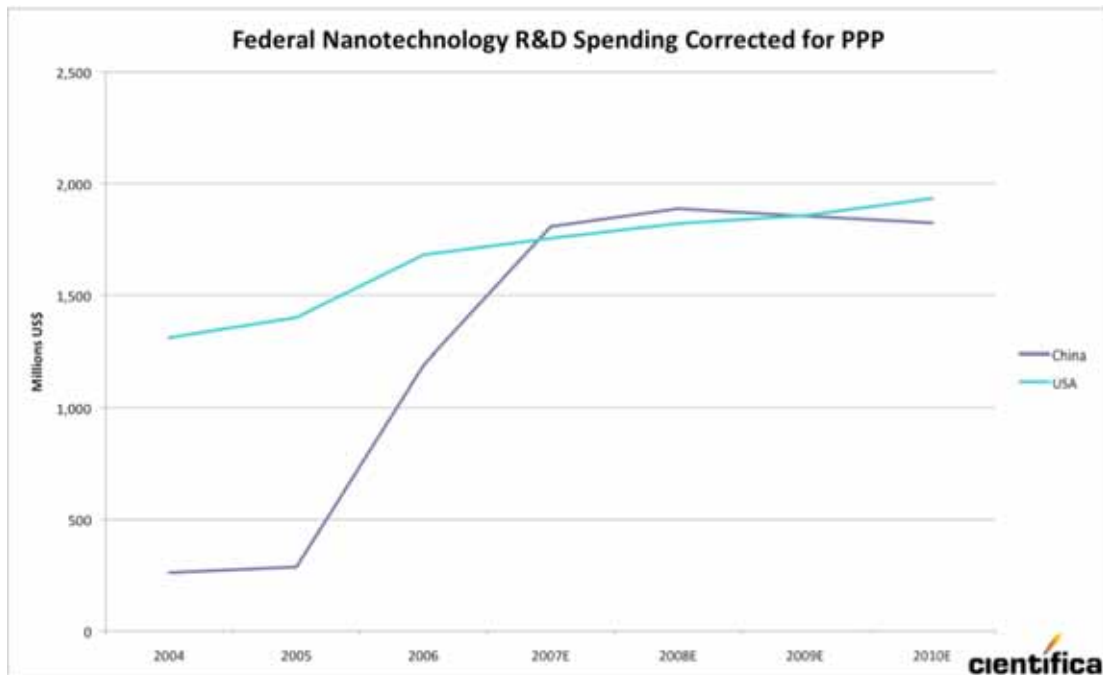


Figure 7 PPP Corrected Funding, China vs the United States (Source: Cientifica Ltd)