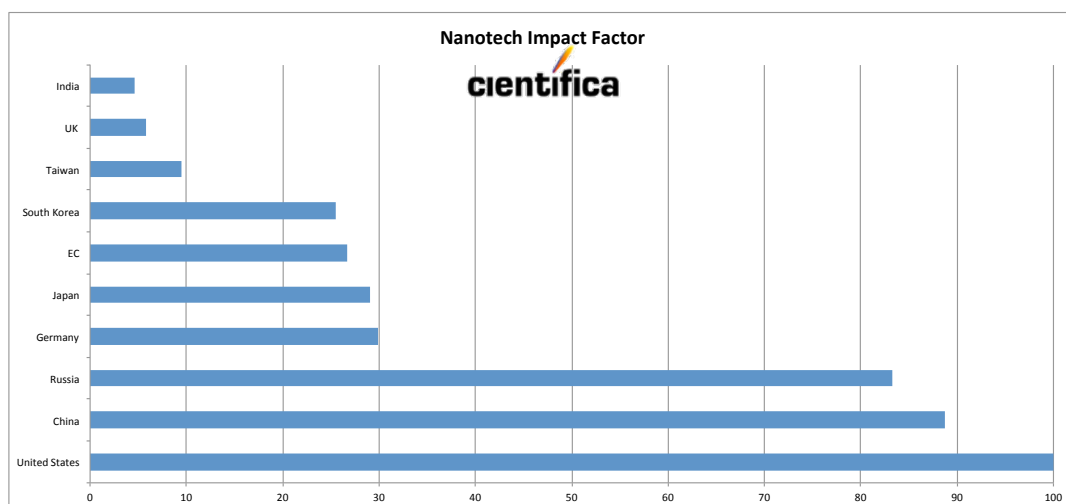


# GLOBAL FUNDING OF NANOTECHNOLOGIES & ITS IMPACT

## JULY 2011



**Contact:**

Tim Harper

Cientifica Ltd

+44 7894 708989

[tim.harper@cientifica.com](mailto:tim.harper@cientifica.com)

## **The Global Funding Of Nanotechnologies & Its Impact**

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 tomorrow's applications.

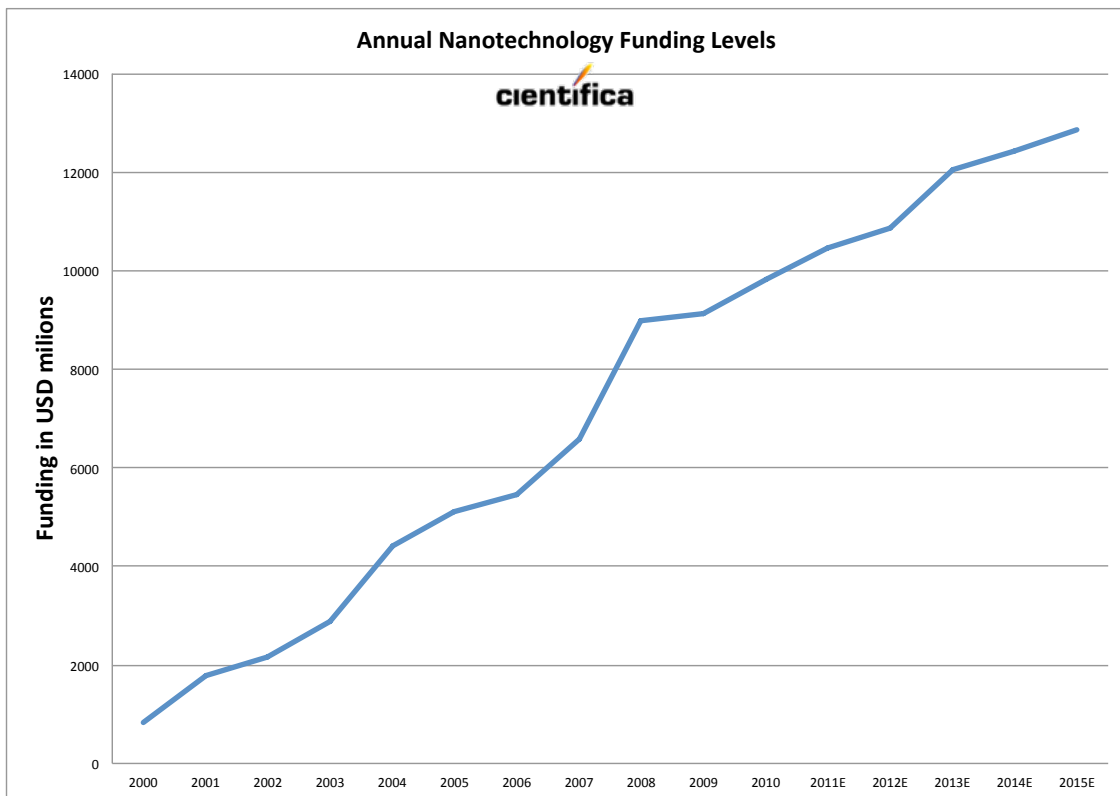
For the 2011 report we have also integrated data from the World Economic Forum's annual Global Competitiveness Report in order to gain insights into how well various countries are able to capitalise on their investment in research.

This white paper gives an overview of the key numbers, which we believe to be the most accurate available anywhere.

For more detailed information about specific technology funding, detailed analysis, country specific information, further insights and strategy, please visit [www.cientifica.com](http://www.cientifica.com) or contact [tim.harper@cientifica.com](mailto:tim.harper@cientifica.com).

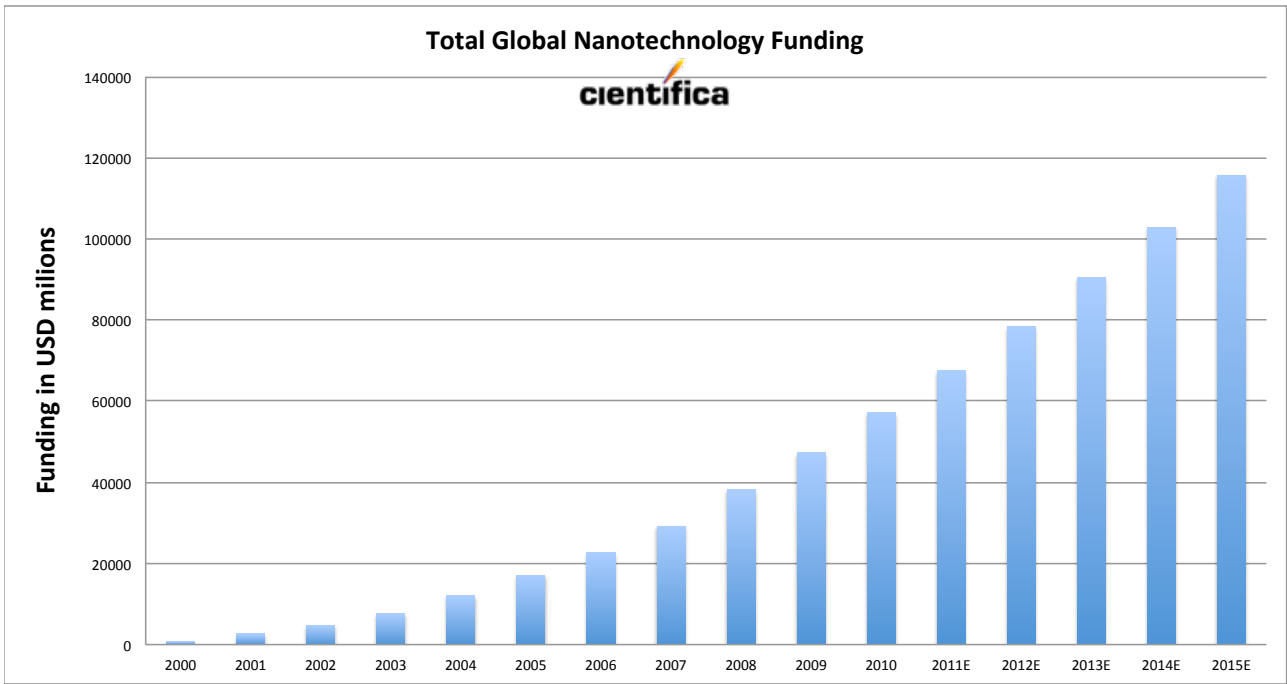
# Annual Global Nanotechnology Research Funding Is Running at \$10 Billion Per Year

Since the US National Nanotechnology Initiative was announced in 2000 almost every developed and developing economy has initiated national nanotechnology programs. The world's governments currently spend \$10 billion per year on nanotechnology research and development, with that figure set to grow by 20% over the next three years.



Total global funding of nanotechnologies (source: Cientifica Ltd 2011)

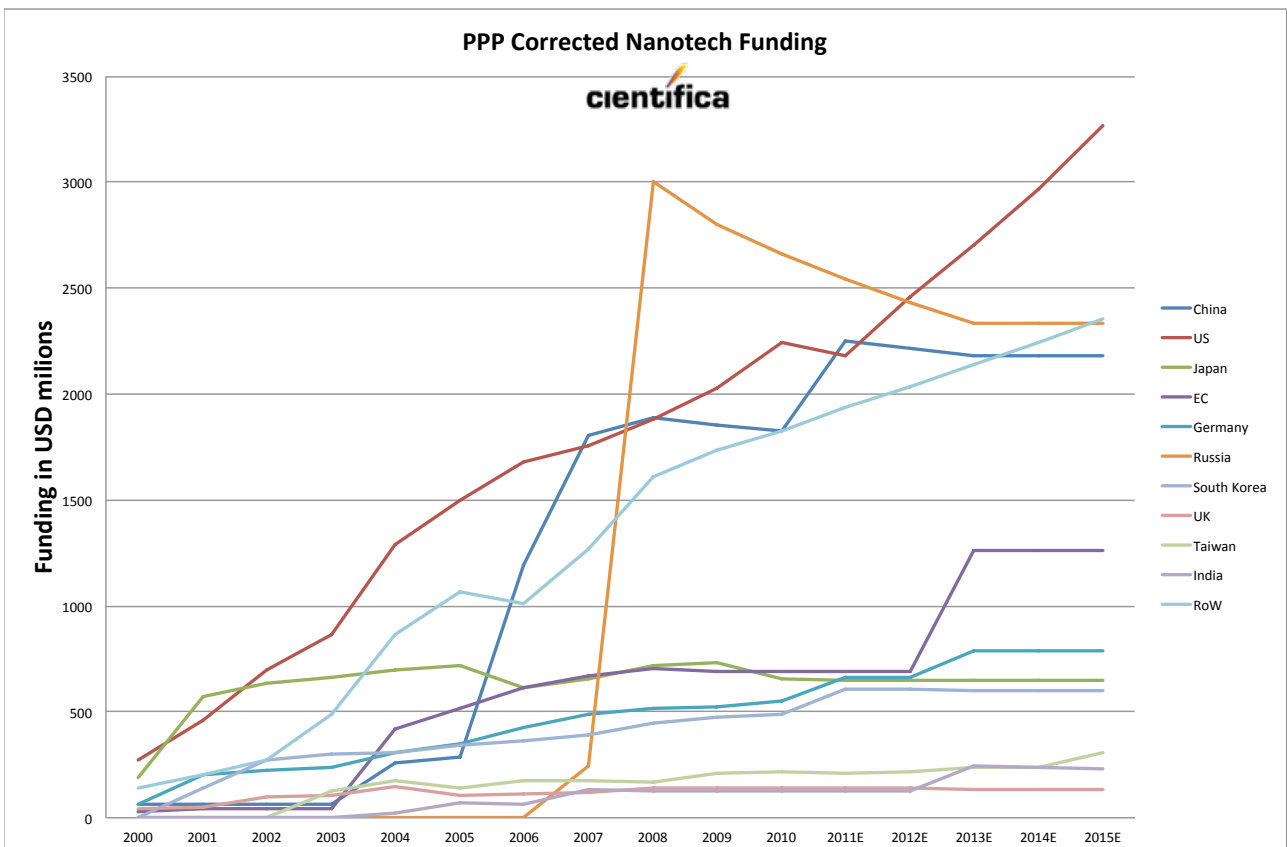
By the end of 2011 the total government funding for nanotechnology research worldwide will be \$65 billion, rising to \$100 billion by 2014. When figures for corporate research and various other forms of private funding are taken into account, which were thought to have surpassed government funding figures as far back as 2004, we estimate that nearly a quarter of a trillion dollars will have been invested into nanotechnology by 2015.

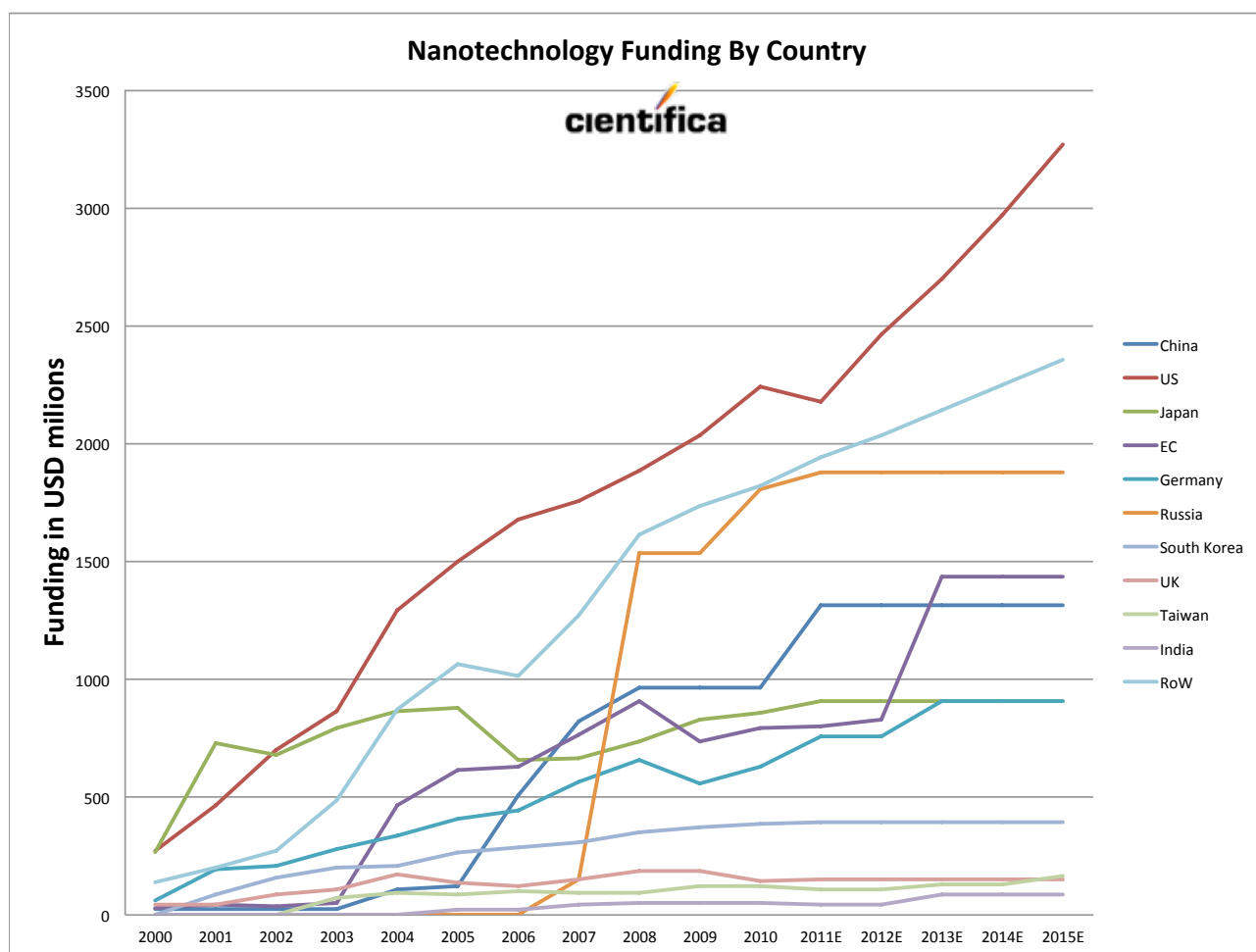


Cumulative global funding of nanotechnologies (source: Cientifica Ltd 2011)

## China's Nanotech Funding Surpasses US in 2011

With US government funding of nanotechnology receding slightly in 2011, this marks the first time in Purchasing Power Parity (PPP) estimates that China will spend more than the US in funding of nanotechnology.





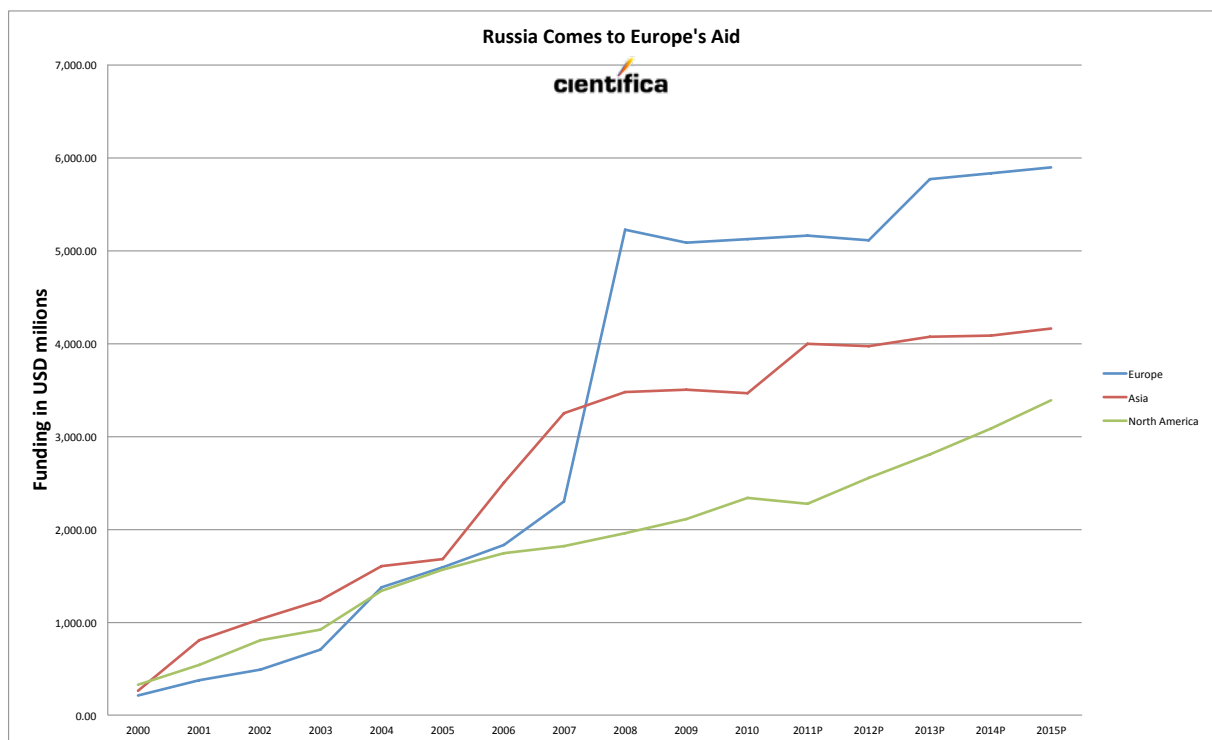
Funding of nanotechnologies by country (source: Cientifica Ltd 2011)

This year, according to our estimates, in PPP terms China will spend US\$2.25 billion in nanotechnology research while the US will spend US\$2.18 billion. However, in real dollar terms, adjusted for currency exchange rates, China is only spending about US\$1.3 billion to the US's \$2.18 billion.

But China is not the first country to outspend the United States. Japan and Russia have also managed to snatch a temporary lead before falling back. In absolute terms the United States still comprehensively outspends everyone else.

A clear trend is emerging: while nanotechnology research spending in Europe and North America is still rising, the fast growth rates are seen in Asia.

Asian investment in nanotechnologies was poised to be largest in the world until RusNano was formed with its huge budget.



Funding of nanotechnologies by region (source: Centifica Ltd 2011)

## Measuring The Ability Of Nations To Capitalize On Nanotech R&D

Simply looking at the amount of funding -- whether in raw dollars or PPP corrected -- fails to tell the whole story. Just because a country throws huge amounts of money at research it does not necessarily follow that the research conducted will have an impact on the economy.

Some countries have excellent research institutions but little in the way of industry-academic cooperation, while others may have large companies who spend little on R&D. In order to obtain a more accurate picture of which economies are best placed to translate research funding into an economic benefit, we used data from the World Economic Forum's annual Global Competitiveness Report.

The rankings in the Global Competitiveness Report are calculated from both publicly available data and the Executive Opinion Survey, a comprehensive annual survey conducted by the World Economic Forum together with its network of Partner Institutes (leading research institutes and business organizations) in the countries covered by the report.

By combining macroeconomic data such as overall global competitiveness, quality of scientific institutions, capacity for innovation and levels of company spending on R&D with a number of other relevant factors we are able to produce an Emerging Technology Exploitation Factor, a measure of the economic impact of emerging technologies, and the efficiency and likelihood of translating technology funding into the economy.

Country	EmTech Exploitation Index
US	5.00
Germany	4.93
Taiwan	4.90
Japan	4.88
S.Korea	4.60
UK	4.55
China	4.30
EC	4.23
India	3.95
Russia	3.57

The ability of countries to exploit emerging technologies (source: Cientifica Ltd 2011)

In general, the US, Germany, Taiwan and Japan have the combination of academic excellence, technology hungry companies, skilled workforce and availability of early stage capital which ensures effective technology transfer.

While this measure holds true for a wide range of research based technologies it takes no account of the level of nanotechnology funding which varies widely across different countries.

When we factor in PPP corrected funding levels the picture changes dramatically.

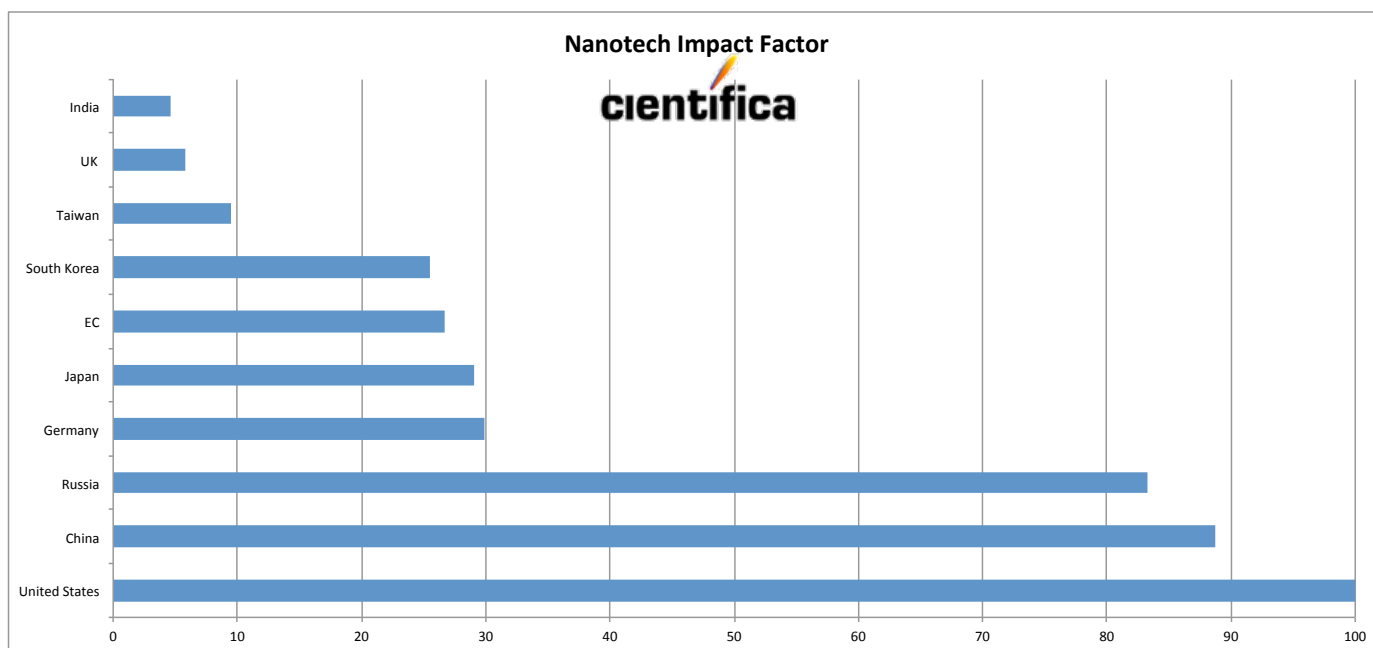
Rebasing the Nanotech Impact Factor on the US (=100) gives a clearer picture of where we expect the technology to have the greatest impact. Of course in the US the nanotechnology is in fierce competition with any number of other technologies, from synthetic biology to social networking, while in Russia it is a very high level stand alone project.

Country	Nanotech Impact Factor
United States	100
China	89
Russia	83
Germany	30
Japan	29
EC	27
South Korea	25
Taiwan	9
UK	6
India	5

The economic impact of nanotechnologies (source: Cientifica Ltd 2011)

Given the overall global competitiveness and technological superiority of the United States it is unsurprising that they top the list. The large amounts of R&D cash available in Russia and China has already put them on a par with US, while a second division appears including Japan, the European Union and major Asian economies.

While the UK has a well-developed infrastructure, the relative lack of funding for nanotechnologies puts it in a third division along with India.



The economic impact of nanotechnologies (source: Cientifica Ltd 2011)