

Comparative Nanotechnology Policy Analysis

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How Can Government Create an Innovative Environment for Nanotechnology?



- A means of “restructuring policies in favor of more dynamic activities”¹
 - How government encourages industrial activity
- “First commercialization of an idea”²
 - OR
 - Basic Research on a subject
- Products made of substances measuring one billionth of a meter

1. Rodrik, Dani. 2004. Industrial Policy for the Twenty-First Century. *Harvard University Faculty Research Working Papers Series RWP04-047*.

2. Fagerberg, Jan. 2004. Innovation: A Guide to the Literature. In Fagerberg, J., Mowery, D., and Nelson, R. (eds.) *The Oxford Handbook of Innovation*. Oxford: Oxford University Press.

Analysis of Nanotechnology Policies

Data: Policies of G20 countries

Research Questions:

- What are their policies & how do they create an innovative environment?
 - ✓ Research and Development
 - ✓ Grants and other programs
 - ✓ Regulatory framework
- What is the policy making process & the role of key actors?
 - ✓ Industry
 - ✓ Responsiveness of bureaucracy



 G20 Countries

Research Methods

1

Online Web Searches

2

Collect Policy Data

3

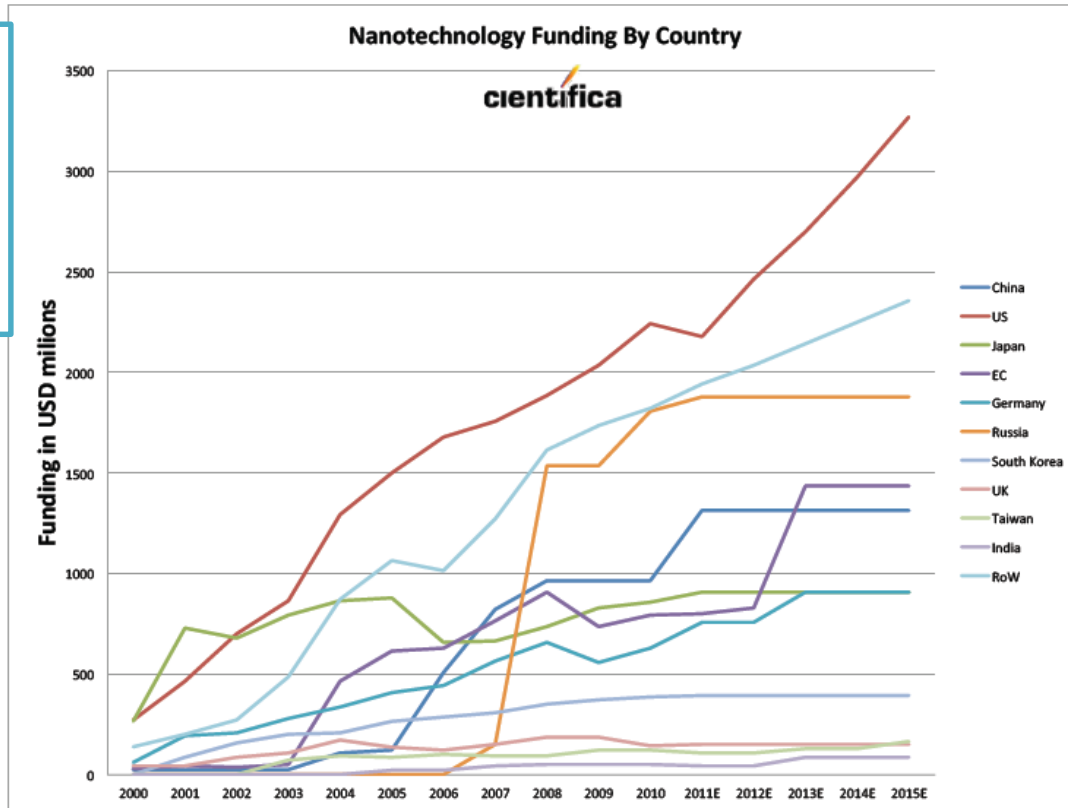
Analyze and Organize



Create a **database** of nanotechnology policies

- Regulatory frameworks
- Funding Levels
- Research Strategies

Example from:
Global Funding of
Nanotechnology
& its Impact
July 2011



This year
search w
change rates,

China will spend US\$2.25 billion in nanotechnology

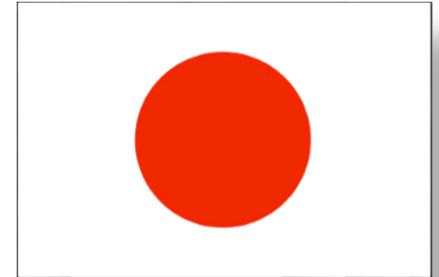
China is only spending about US\$1.3 billion to the US's \$2.18 billion.

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.

States Researched



Germany



Japan



Russia



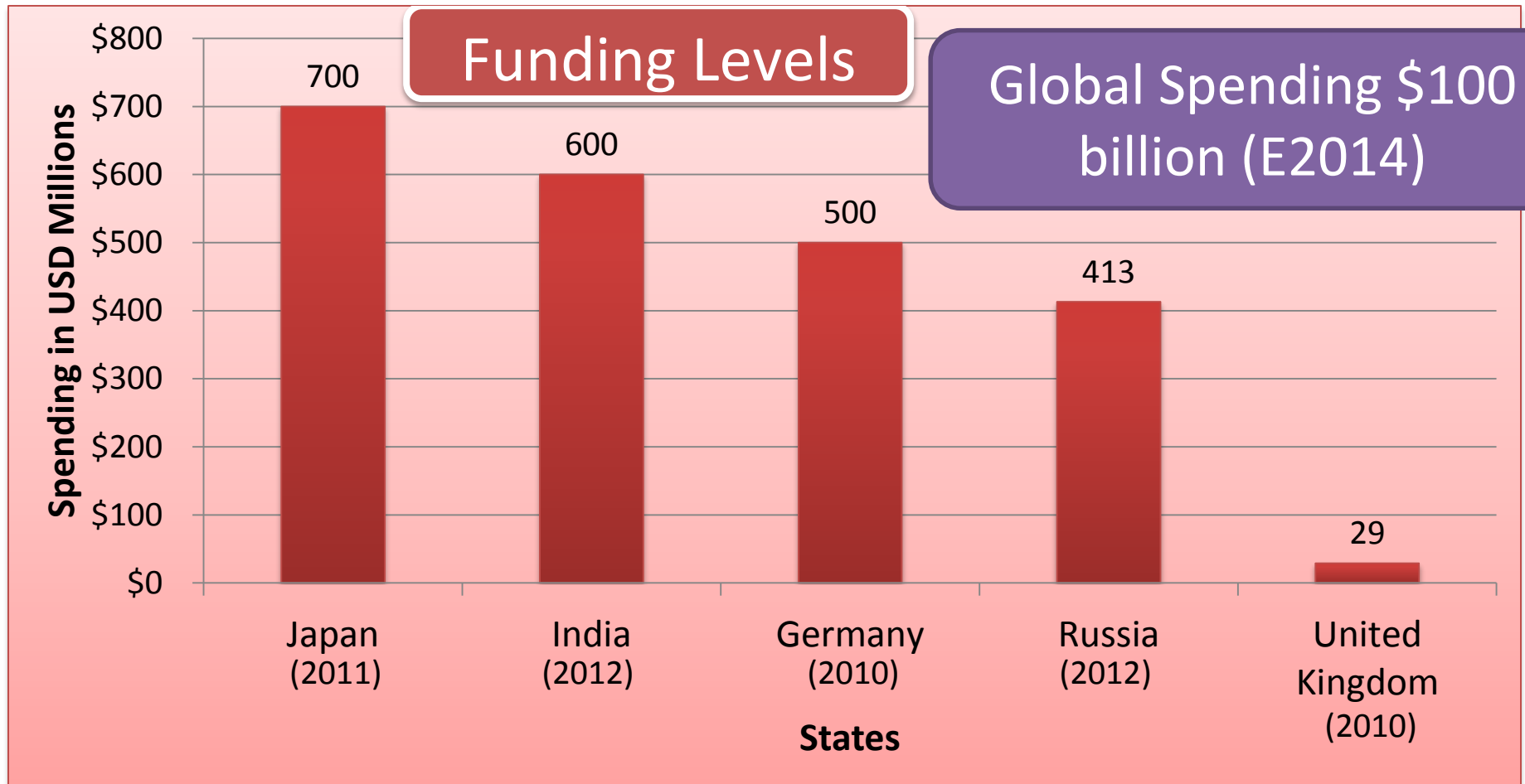
India



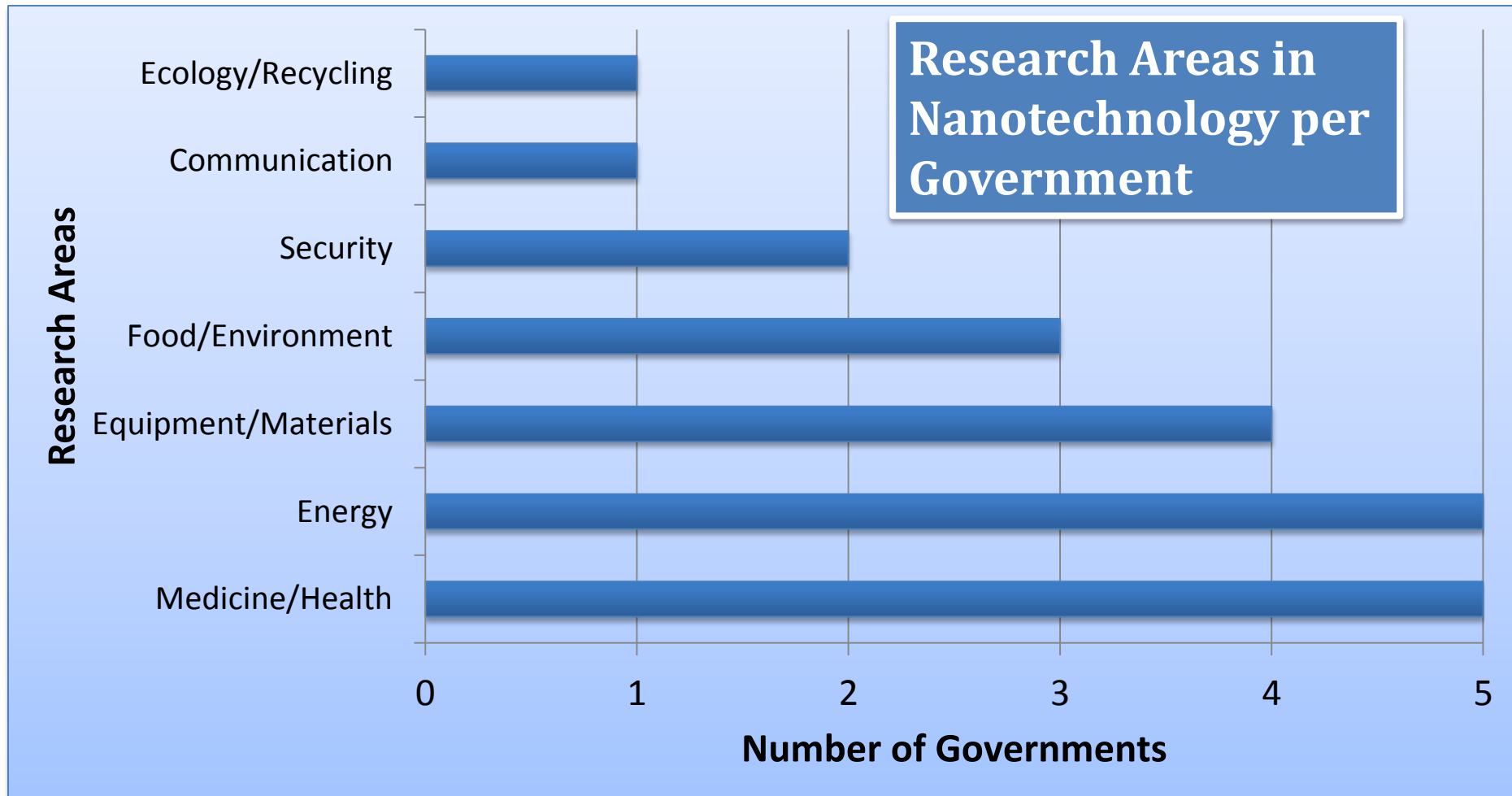
United Kingdom



Analysis of Data



Analysis of Data



Case Studies: Structure

Investment

Innovation

Programs

Or

Regulators

Aim

Targets

Funding

Germany Case Study

Action Plan Nanotechnology 2015

Investment

US\$500 Million (2010)

Innovation

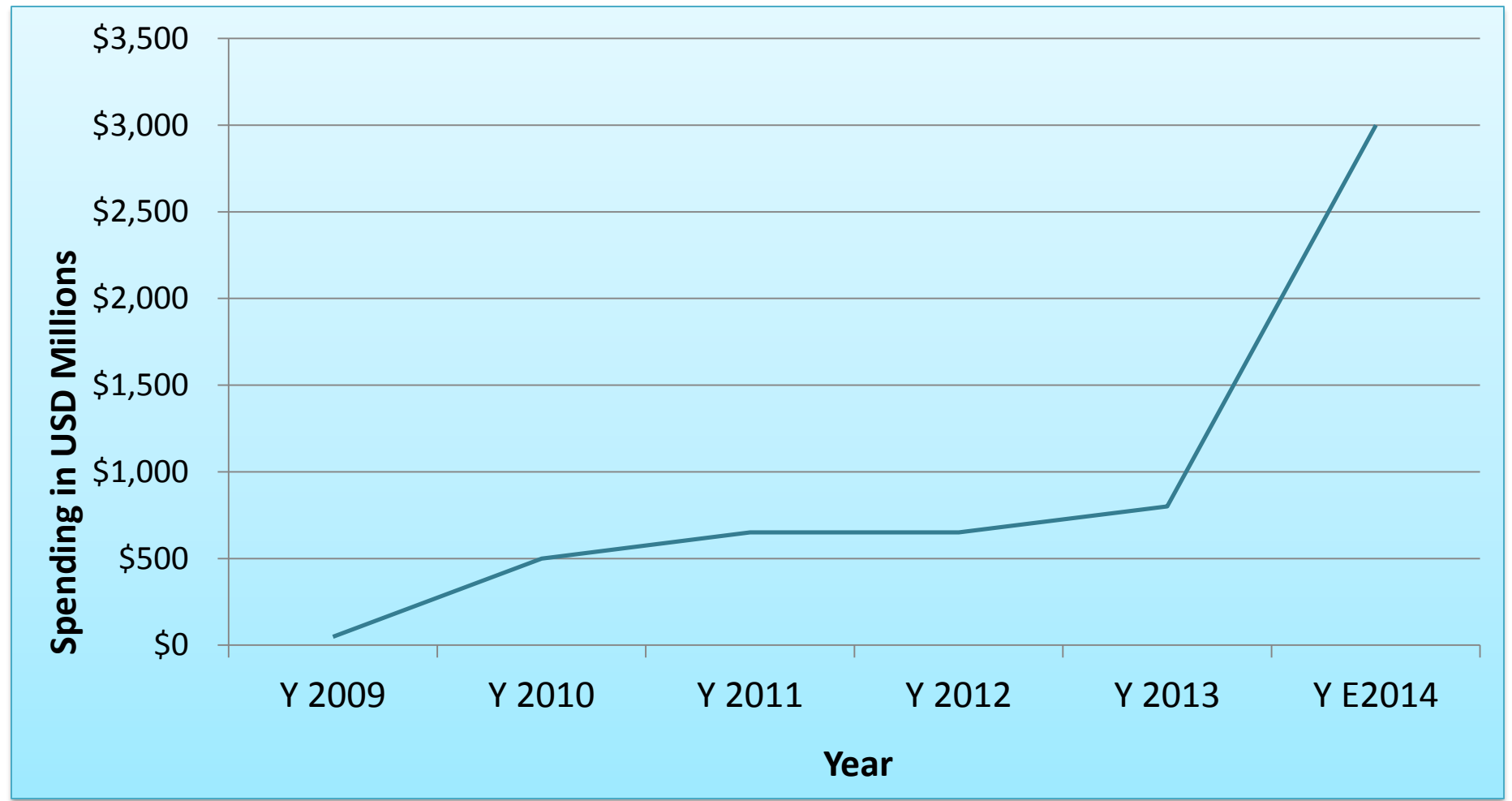
Federal Government giving grants to Small and Medium-Sized Enterprises (SMEs)

Programs

“NanoChance” programs for startups



Germany Spending in Nano



Germany Funding Programs

Aim

“NanoChance” help ease access to research funding

Targets

Small and Medium-Sized Enterprises (SMEs)

Funding

Non-repayable project grants worth up to US\$130,000

Duration

24 months

Russian Federation Case Study

Development Program for the Russian Nano-Industry to 2015

Investment

US\$413 million (2012)

Innovation

RUSNANO

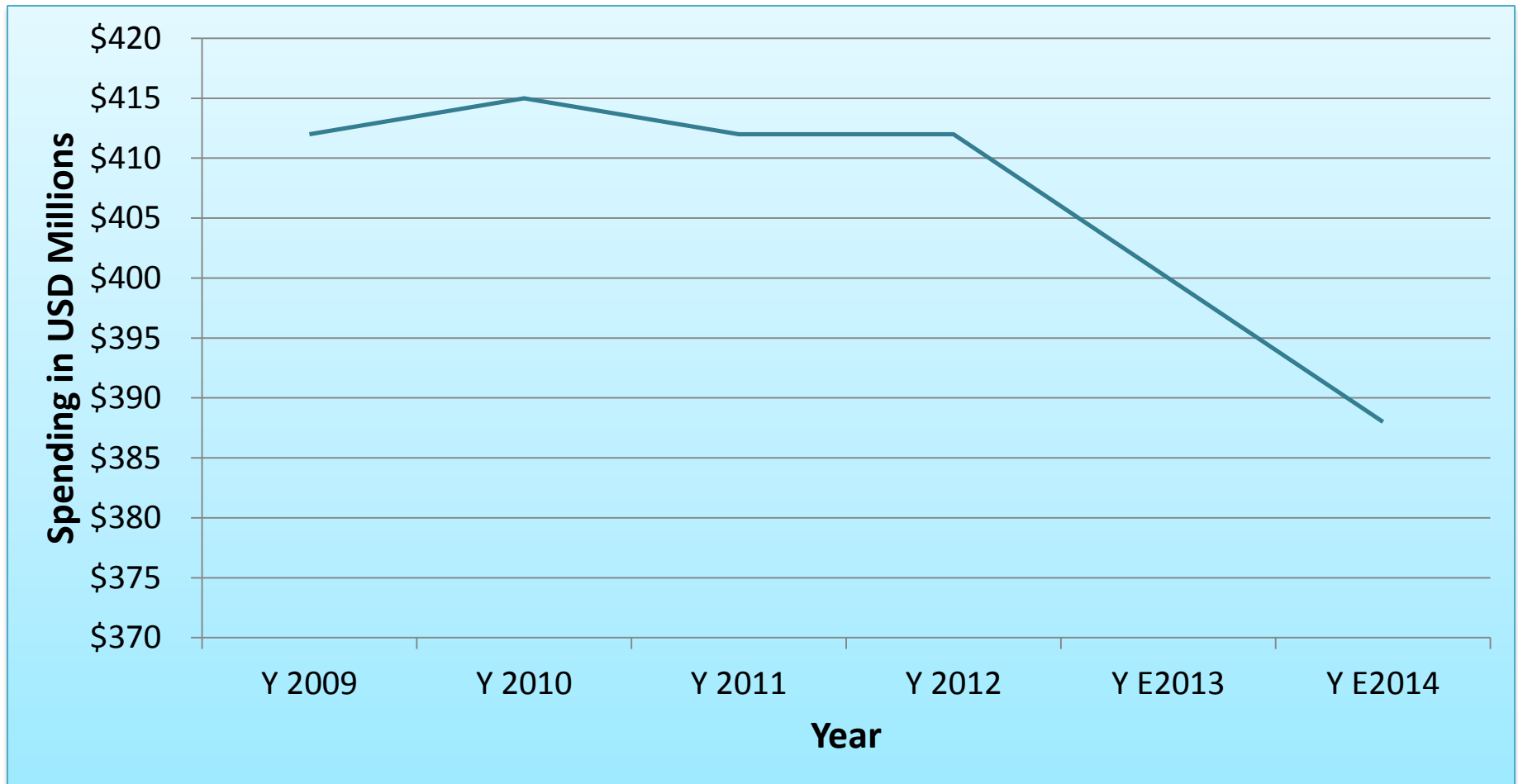
Regulation

Regulation 54: inspection of new products containing nanomaterials

Risk

Methodological guidelines for toxicological and hygienic evaluations of safety of nanomaterials

Russia Spending in Nano



Russia Funding Programs

Aim

RUSNANO – “InfraFund”- Support commercialization of scientific *innovation* and R&D results

Targets

12 nanotech centers (**SMEs**) to be funded

Funding

Approved US\$7.3 million in loans for Dubna Nanotech Center (SME)

Russian-German Collaboration

Aim

Enable Russia and Germany to carry out joint projects

Targets

SMEs

Funding

Non-repayable project grants up to US\$130,000 (from each state)

Duration

24 Months





European Union
(EU)

European Union Case Study

Action Plan for Nanotechnologies in Europe for 2010-2015

Investment

US\$4.6 billion budget

Innovation

Seventh Framework Program
– US\$4.6 billion (2007-2013)

Regulators

Registration, Evaluation,
Authorization, and Restriction
of
Chemicals **(REACH)** &
Classification, Labeling and
Packaging **(CLP)**



EU Funding Programs

Aim

FP7-Seventh Framework Program
support innovation of nano through
the European Commission

Target

Agencies and SMEs

Funding

SME targeted projects **US\$52 million**

✓ Horizon 2020 next nano
funding agent in EU



Summary



- ✓ Funding
- ✓ Agencies
- ✓ Regulations
- ✓ Global market

- Nanotechnology still an uncertainty
- Guidelines for policy makers as they try to develop policy with limited budget

Future Research

- Continue researching G20 countries and their changing policies and regulations
- Continue to create database for each country
- Measure the effectiveness of these programs through patents, publications, and economic gain



Thank you!

This work is supported by the NSF under the Coop. Agreement SES 0531184 and SES 0938099 to the CNS at UCSB. Any opinions, findings, and conclusions or recommendations expressed in this material are those of the author(s) and do not necessarily reflect the views of the National Science Foundation.