

Strategic dimensions of brazilian development

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Which is the type of society that we want to build in Brazil?

“This is the starting point for thinking about our future, to identify and rank our priorities and to build a political platform that gives support to the development effort and that allows the solution of the immense challenges we face ahead.”

“O Brasil que queremos”.
Centro de Altos Estudos Brasil século XXI
2014

Challenges:

- "To ensure the continuity and extend the reach of the current process of redistribution of income and wealth
- To advance in the process of universalization of public education and health services, to increasing levels of quality
- Reorder the urban environment and improve the quality of life in cities
- Resume economic growth and industrialization process
- Increase the investment capacity of the Brazilian economy
- Improve industrial productivity according to the expansion of employment and labor income”

- “Reduce the scientific and technological gap that separates Brazil from the most developed countries
- Accelerate the transition to a low-carbon and environmentally sustainable economy
- Enlarge the spaces of autonomy for the management of national development policy, to affirm of national strategic interests in the international scenario and to the consolidation of our sovereignty over the country, the continental shelf and its natural resources”

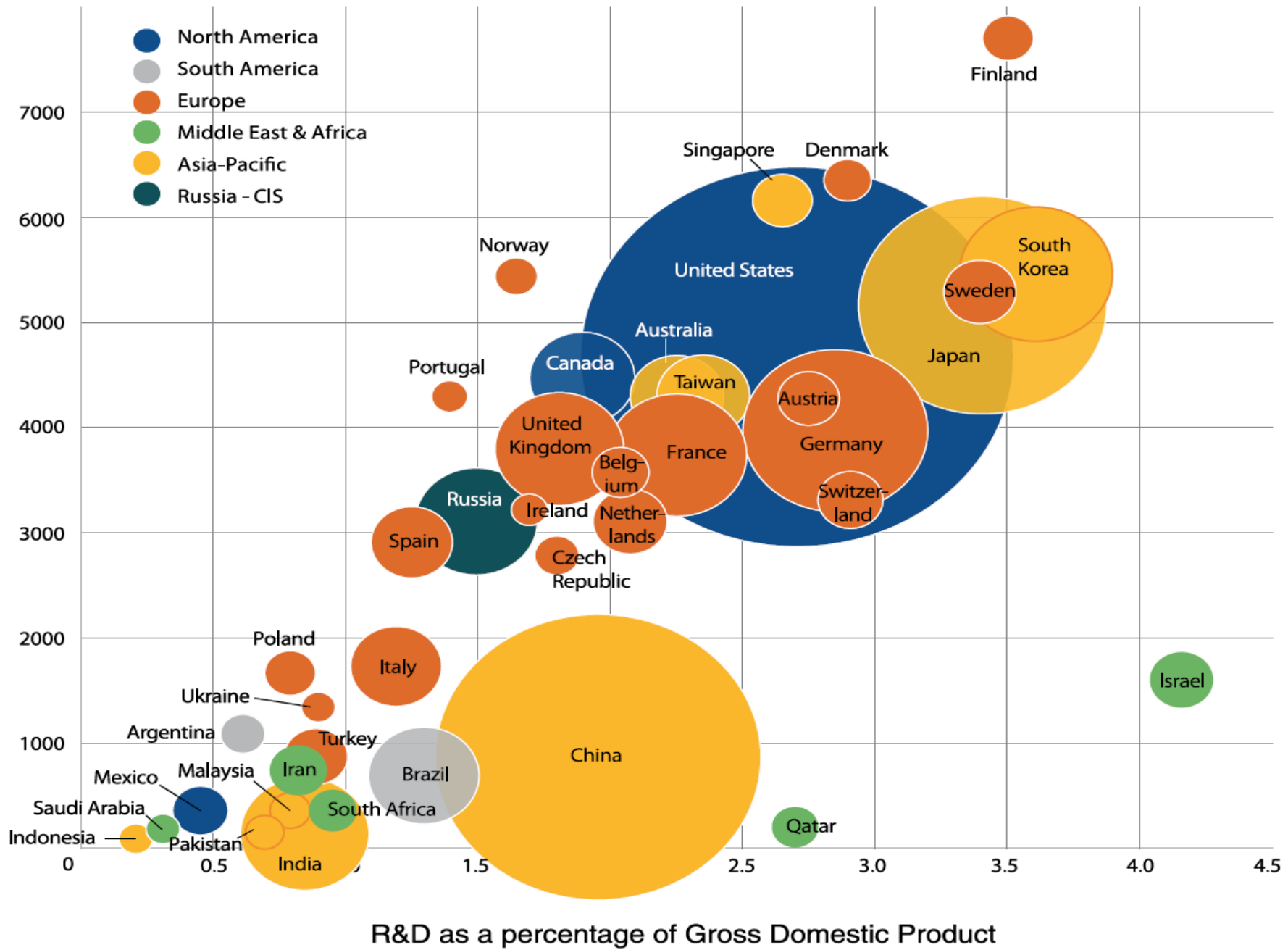
“O Brasil que queremos”.
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- Development is a process of diversification and expansion of the productive structure.
- Increased productivity and well-being.
- Diversification of the productive structure means creating new markets.
- The role of the state and STI policies in creating new markets

World of R&D 2013

Size of circle reflects the relative amount of annual R&D spending by the indicated country

Scientists and Engineers per Million People



Source: Battelle, R&D Magazine, International Monetary Fund, World Bank, CIA Fact Book, OECD

Estimate of expenditure on R & D - 2014

Billions of US dollars - exchange rate PPC

		Gastos em P&D	%
1	Estados Unidos	465	28,74
2	China	284	17,55
3	Japão	165	10,19
4	Alemanha	92	5,69
5	Coréia	63	3,89
6	França	52	3,21
7	Reino Unido	44	2,72
8	Índia	44	2,72
9	Rússia	40	2,48
10	Brasil	33	2,04
	Subtotal	1.282	79,23
	Outros	336	20,77
	Total	1.618	100,00

Source: National Science Foundation Science and Engineering Indicators 2014.

Industry's contribution to total spending on R & D

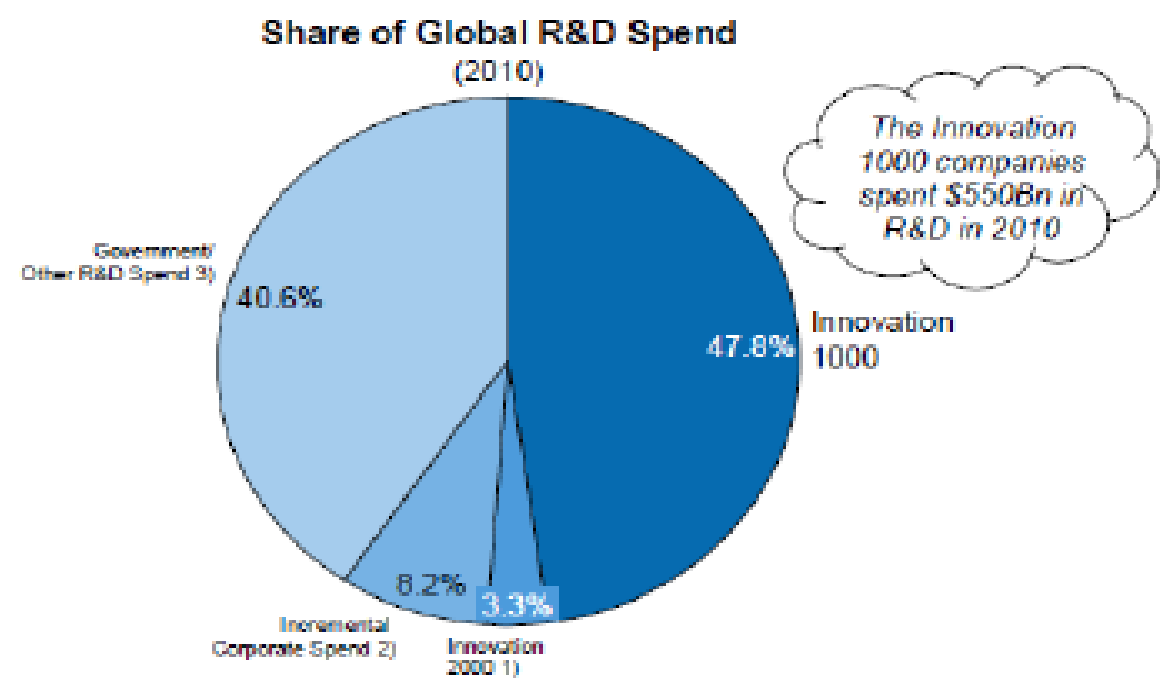
País	%
Alemanha (2008)	89,0
Coréia do Sul (2010)	87,7
Japão (2010)	87,1
China (2009)	84,0
França (2007)	83,6
Reino Unida (2009)	73,9
Estados Unidos (2009)	69,3

Source: National Science Foundation Science and Engineering Indicators 2014.

País	Setor
Coréia do Sul	Eletrônica (47%)
Alemanha	Automóveis (32%)
Reino Unido	Farmacêutica (32%)
Estados Unidos	Serviços (30%)

Source: National Science Foundation Science and Engineering Indicators 2014.

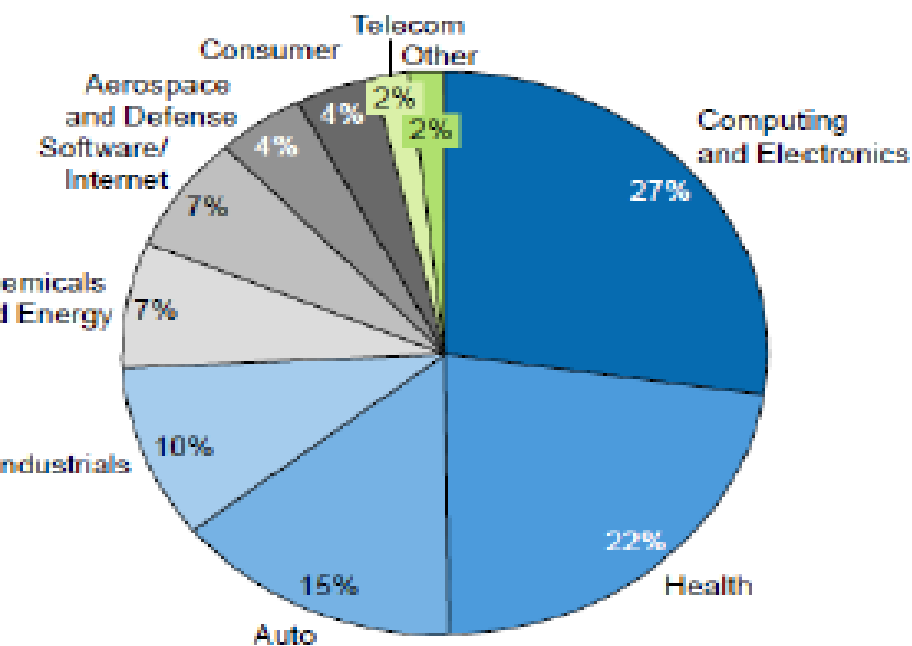
In 2010, total Global R&D was ~ \$1.15 Trillion - the Innovation 1000 represent \$550 Billion nearly 50% of it



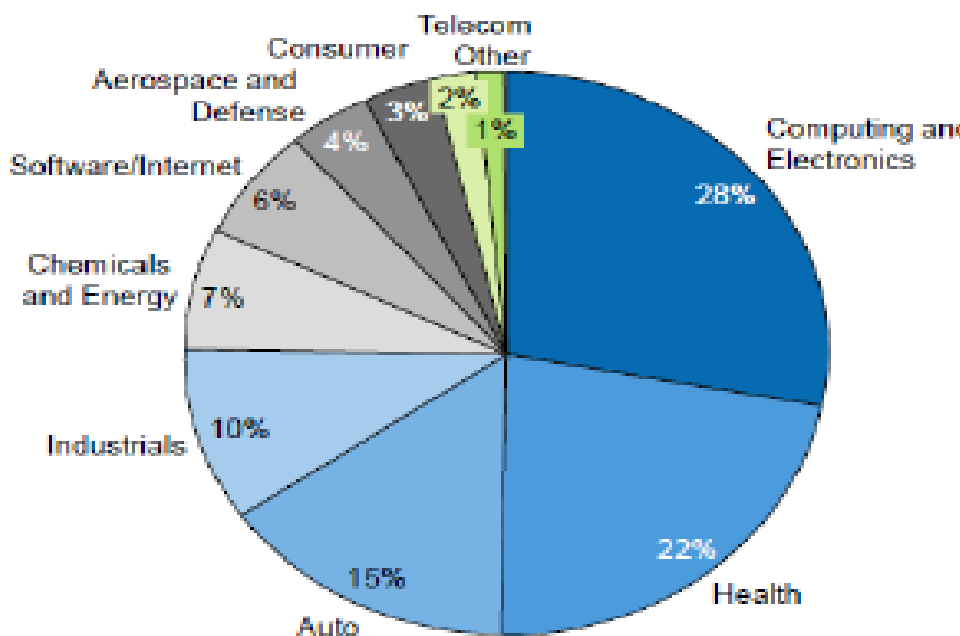
1) Innovation 2000 spend for Innovation 2010 companies ranked 1001-2000. Innovation 2000 spend increased slightly from 2009 global spend (2010 Innovation study)
 2) Incremental corporate spend calculated using 2.1% growth rate. Growth calculated using companies ranked 1001-2000 for 2010 Innovation 1000 and 2010 Innovation 2000
 3) Government/Other R&D spend calculated using Government spend in 2008 and 2009 Innovation 1000 studies: Global 2011 R&D Estimate, R&D Magazine December 2010.
 Source: Booz & Company analysis

Nearly 2/3rd's of spend is in just three industries: Computing & Electronics, Health, and Auto

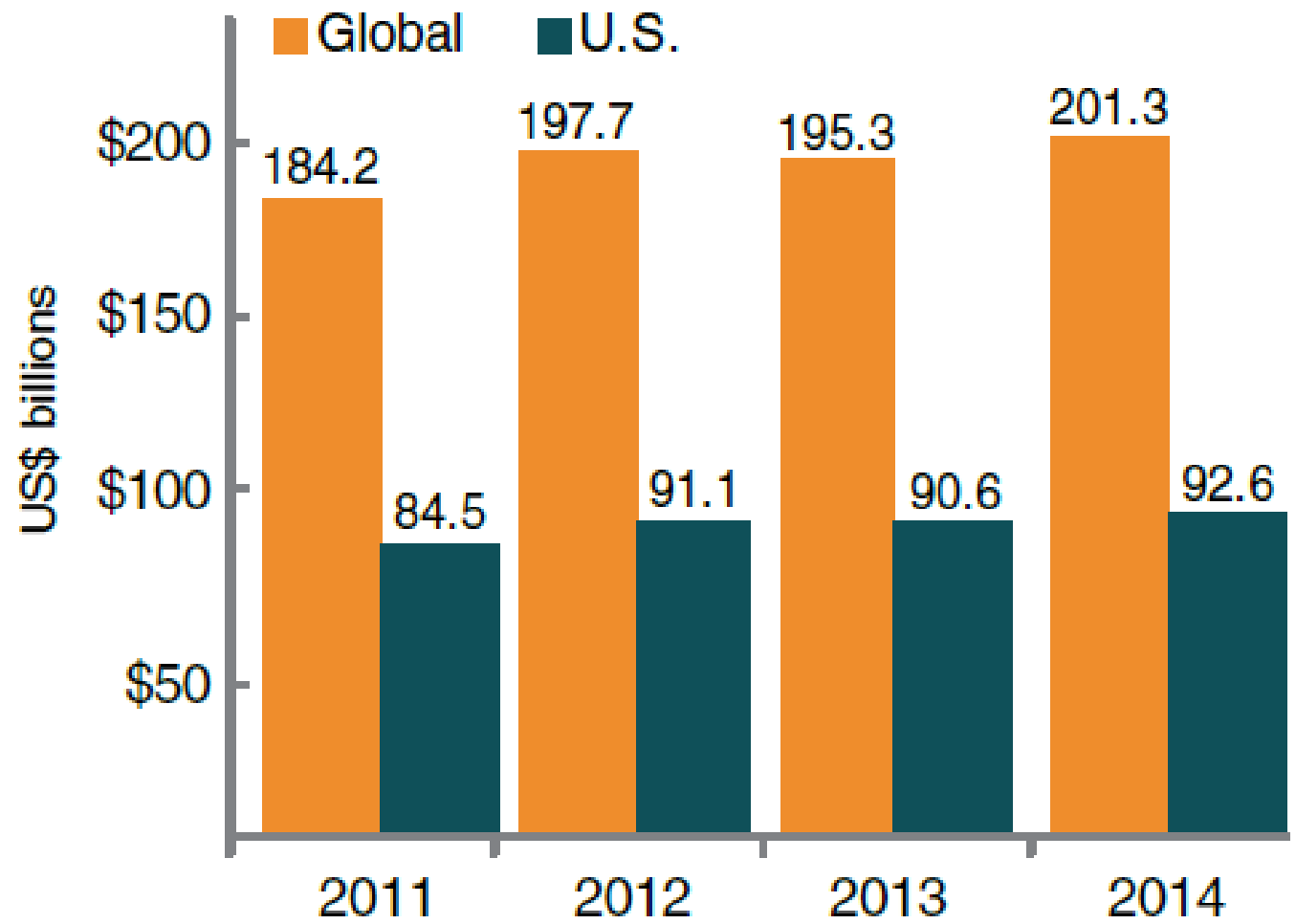
2009 R&D Spend by Industry (\$503B)



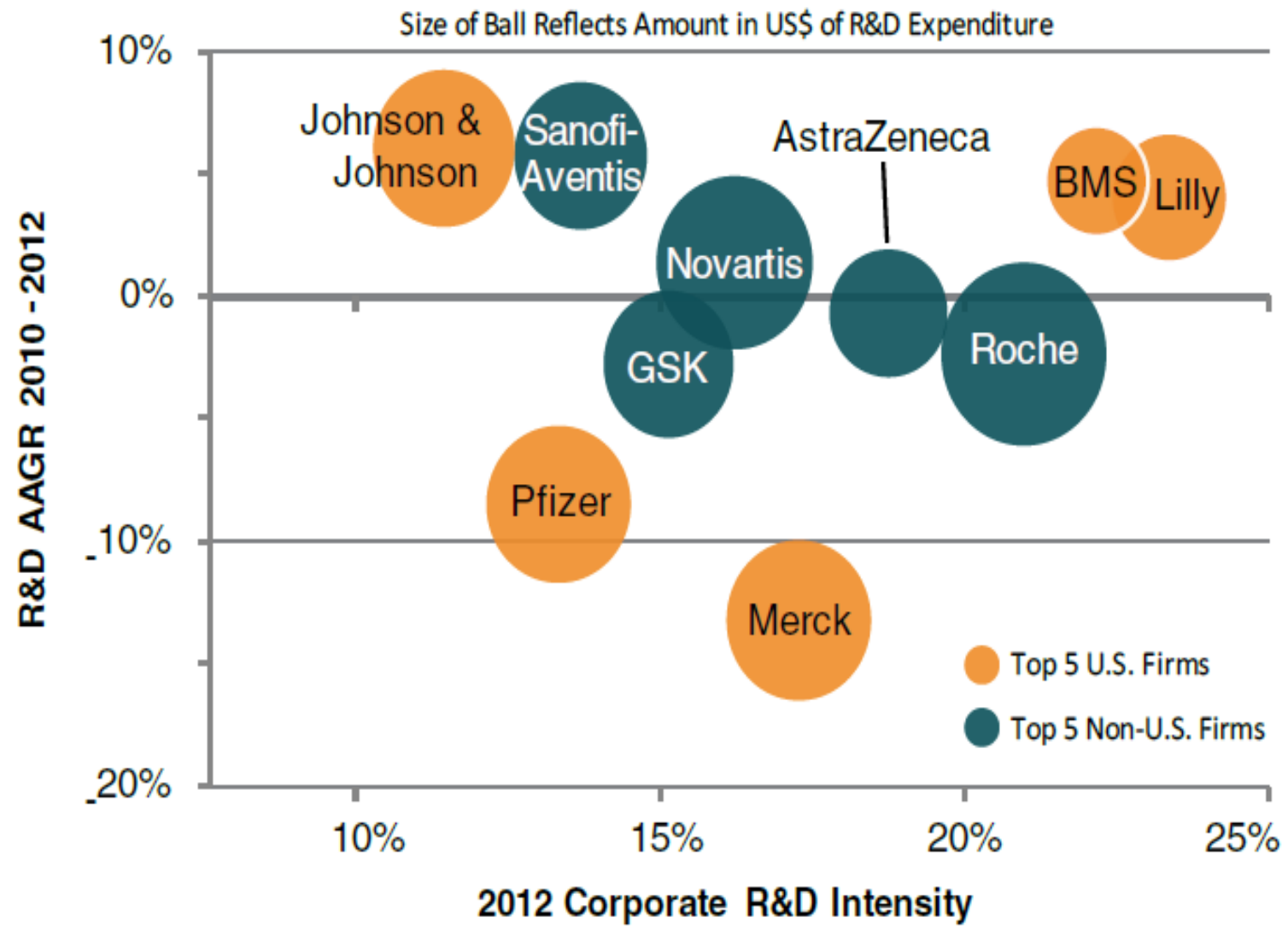
2010 R&D Spend by Industry (\$550B)



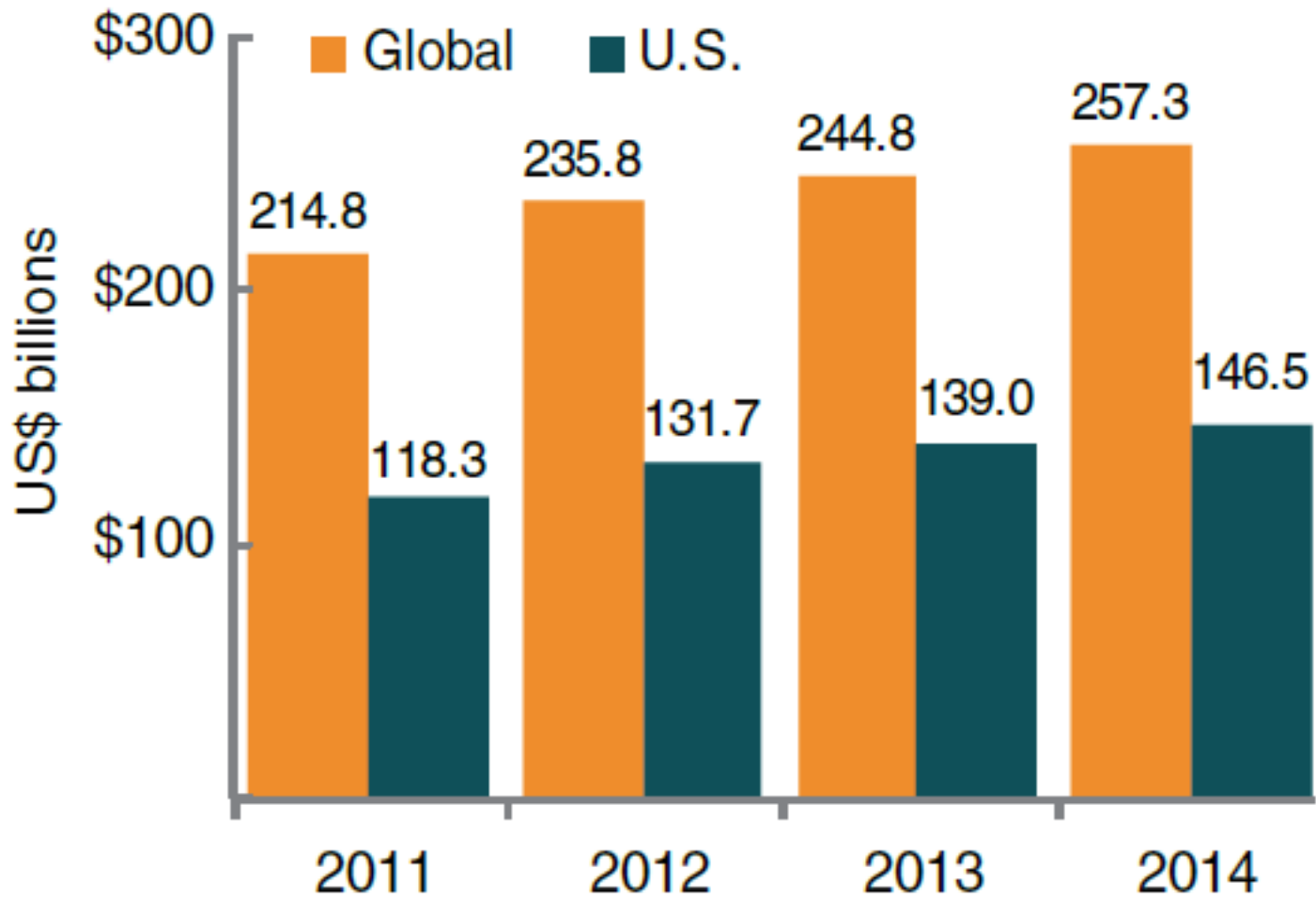
Life Science Industry R&D Spending



Source: Battelle/R&D Magazine estimates



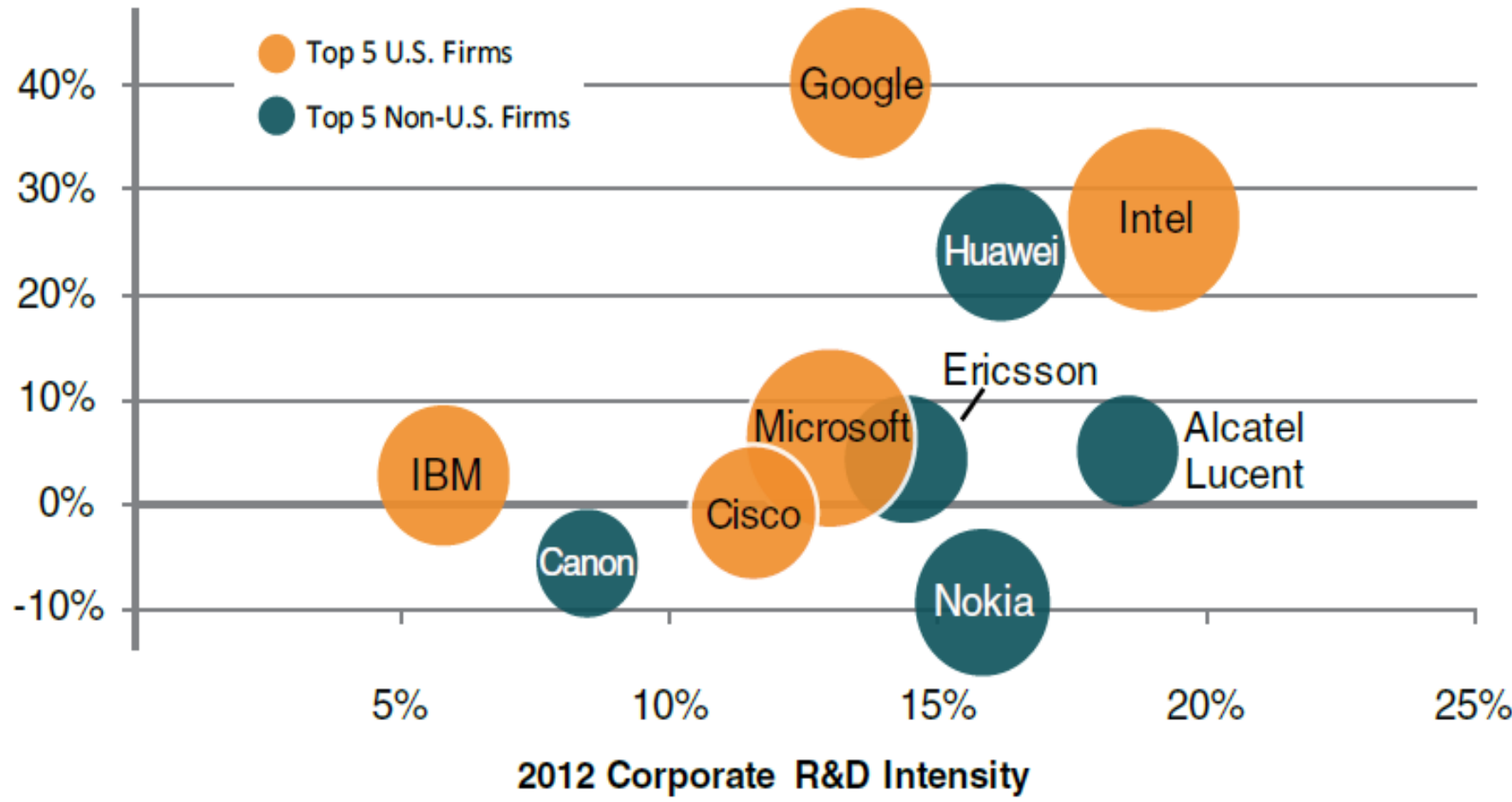
ICT Industry R&D Spending



Source: Battelle/R&D Magazine estimates

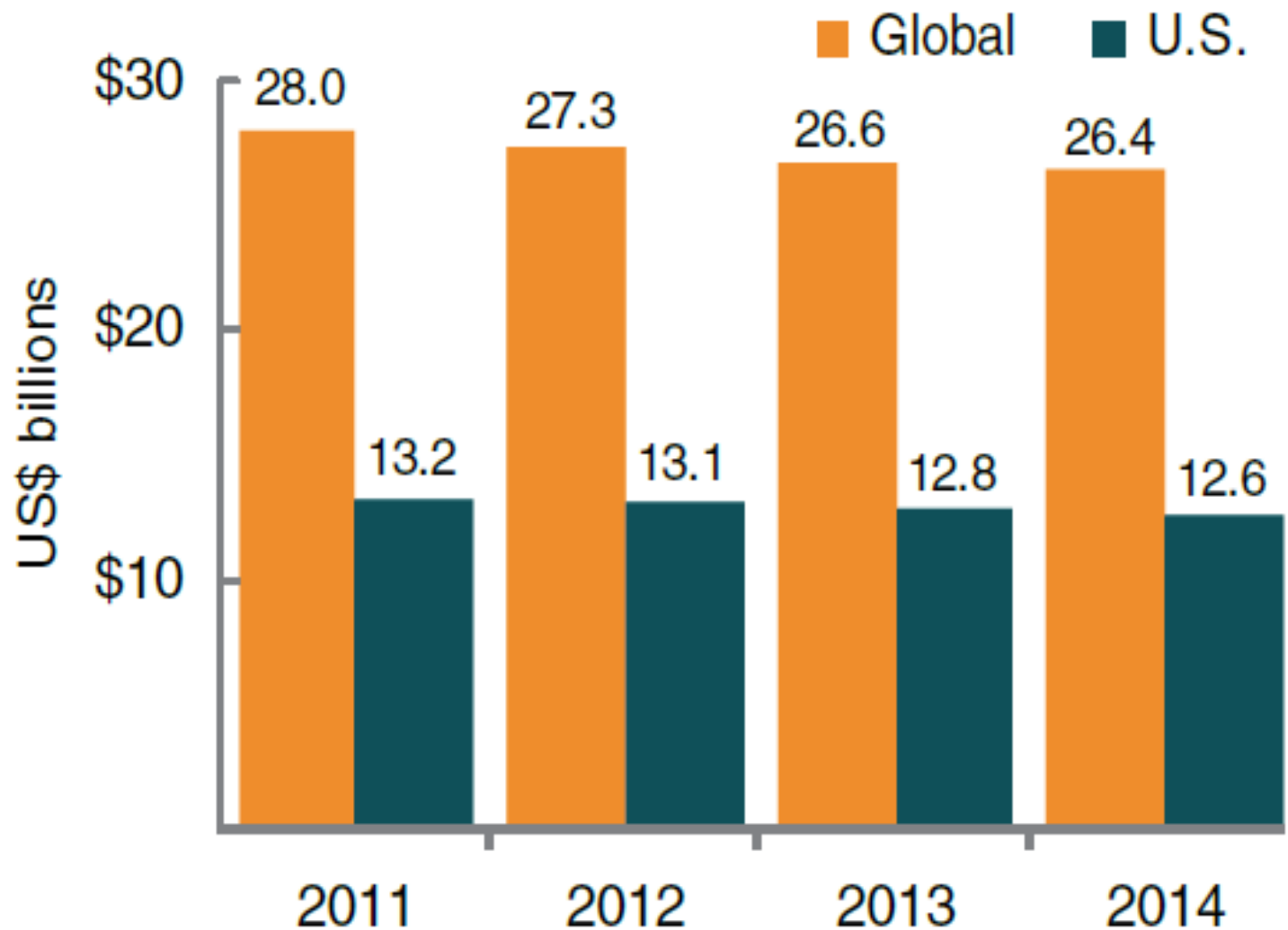
Size of Ball Reflects Amount in US\$ of R&D Expenditure

R&D AAGR 2010 - 2012

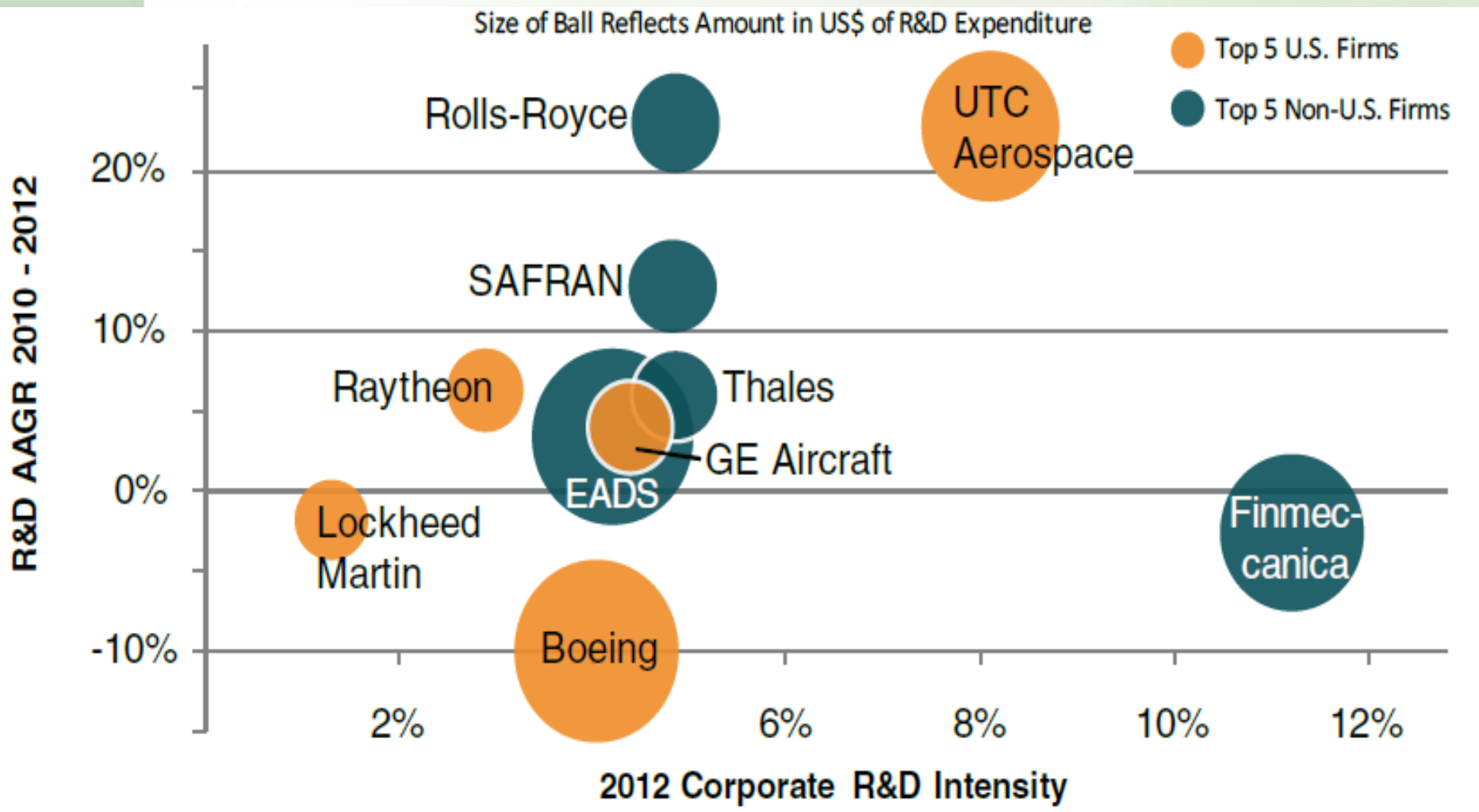


Source: Battelle/R&D Magazine, Schonfeld & Associates, European Commission-JRC/EIRI

Aerospace/Defense/Security Industry R&D Spending

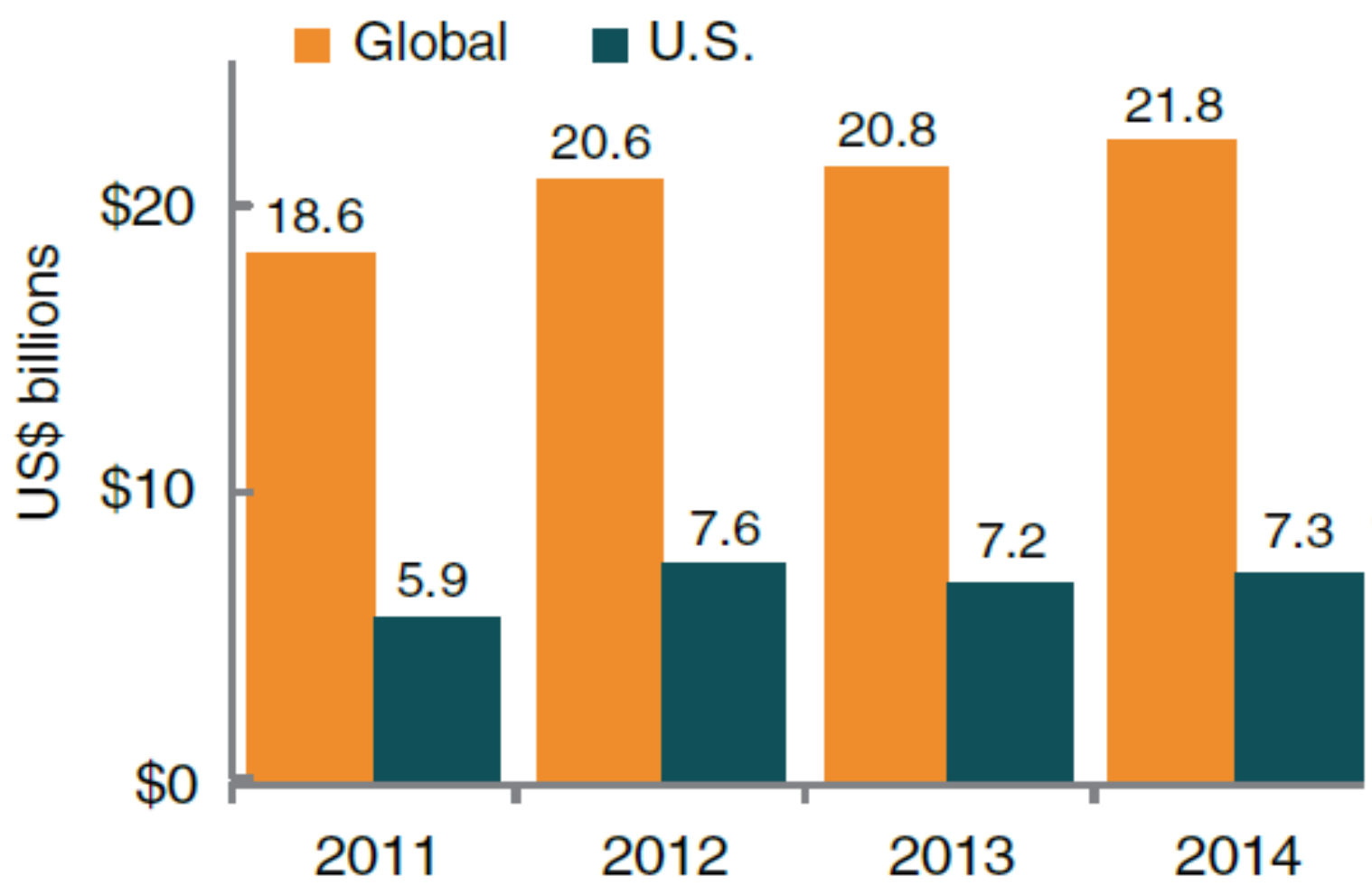


Source: Battelle/R&D Magazine estimates

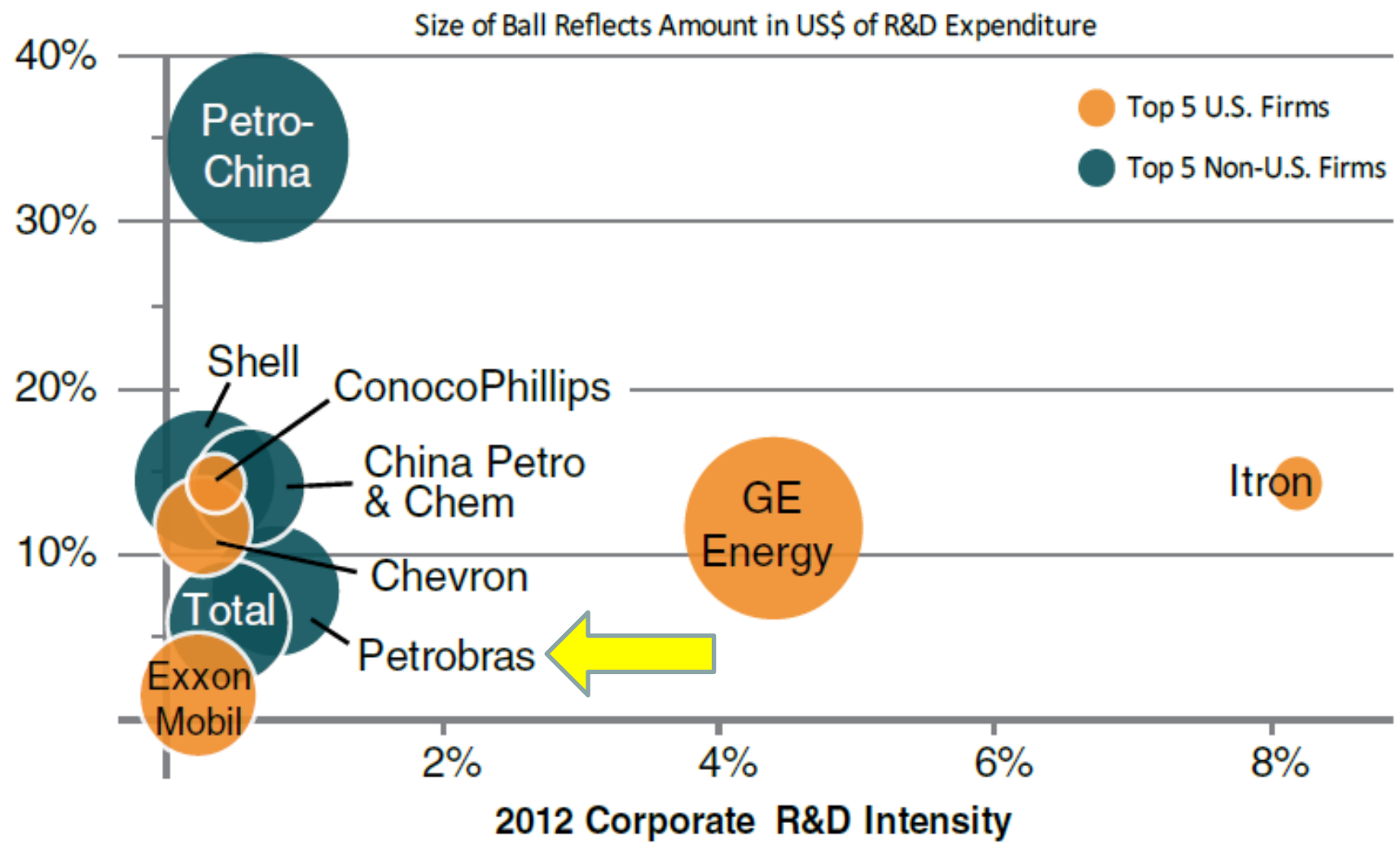


Source: Battelle/R&D Magazine, Schonfeld & Associates, European Commission-JRC/EIRI

Energy Industry R&D Spending



Source: Battelle/R&D Magazine estimates



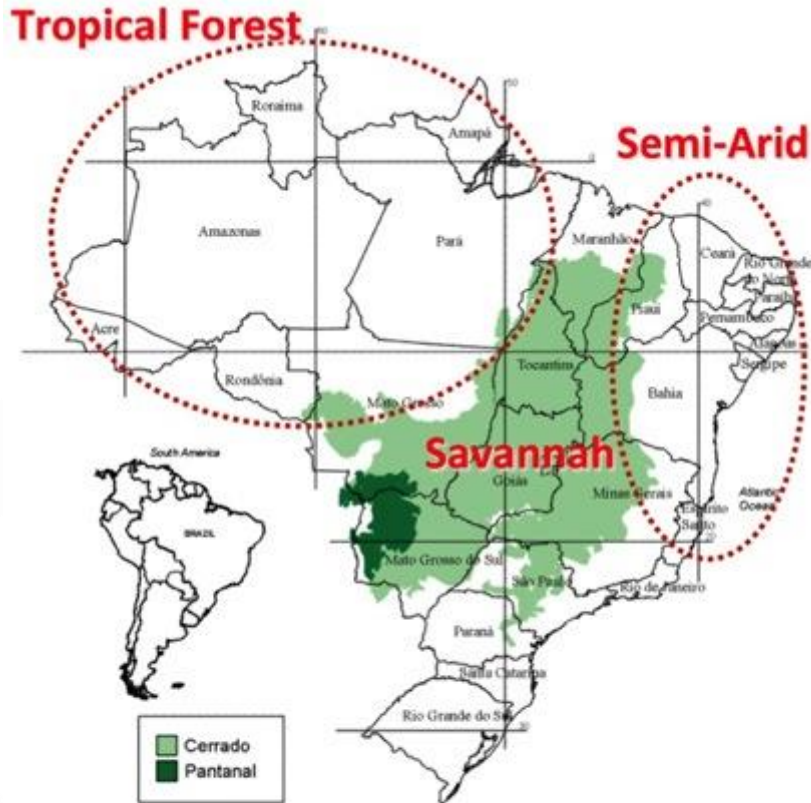
Source: Battelle/R&D Magazine, Schonfeld & Associates, European Commission-JRC/EIRI

Distribution of expenditure on R & D performed by US corporations in other countries- 2010

País	%
Alemanha	17,0
Reino Unido	15,0
Canada	7,0
Bélgica	5,4
França	5,0
Israel	4,9
Japão	4,8
Índia	4,2
China	3,7
Irlanda	3,6
Brasil	3,5

Fonte: National Science Foundation Science and Engineering Indicators 2014.

Early Challenges to Agricultural Development in Brazil



Before the 1970's Brazil was not a food secure country.

- Low agricultural production and low yields;
- Production concentrated in the South and Southeast Regions;
- Constant food supply crisis and rural poverty;
- Lack of specific knowledge in Tropical Agriculture;
- Lack of adequate agricultural development policies;
- Brazil known as coffee and sugar producer.

Evolution of Agriculture in Brazil

Agricultural Expansion – From 1960's to 1990's

Agricultural Expansion in Brazil

From the 1960's to the 1990's



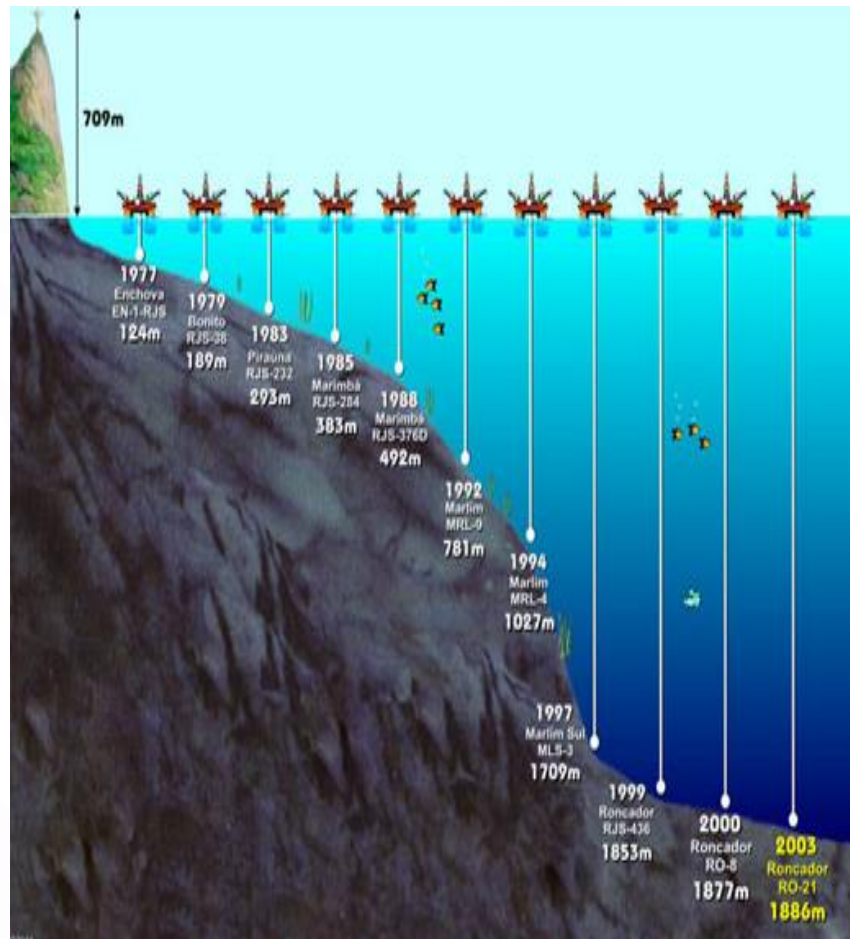
Science-based “Tropicalization” of Soybeans



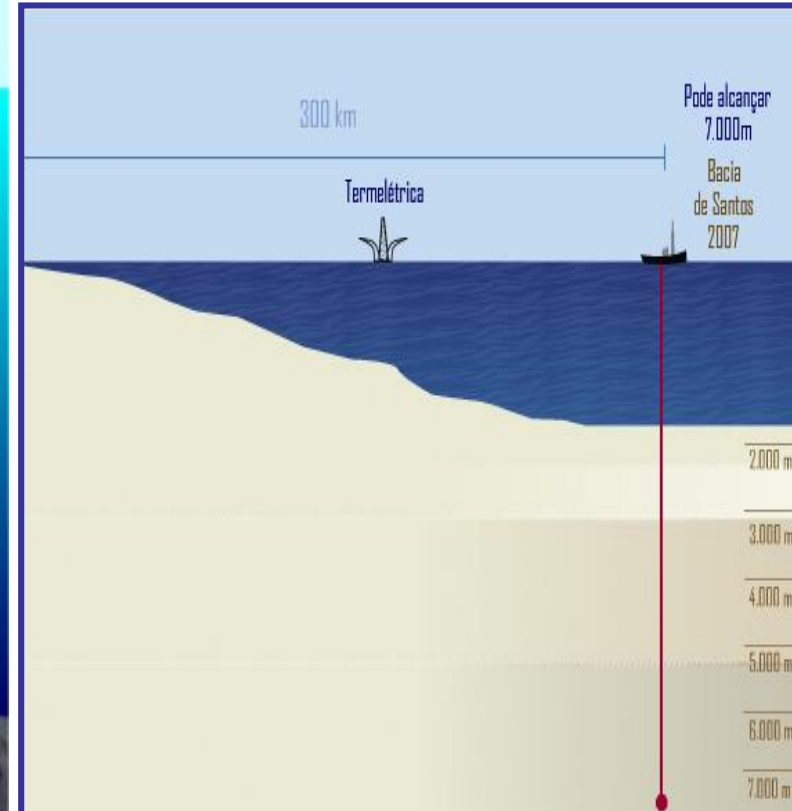
- Adapted varieties – genetics and breeding
- Biological nitrogen fixation
- Pest and disease control
- Minimum and no-tillage cultivation - mechanization

The Oil and Gas Industry

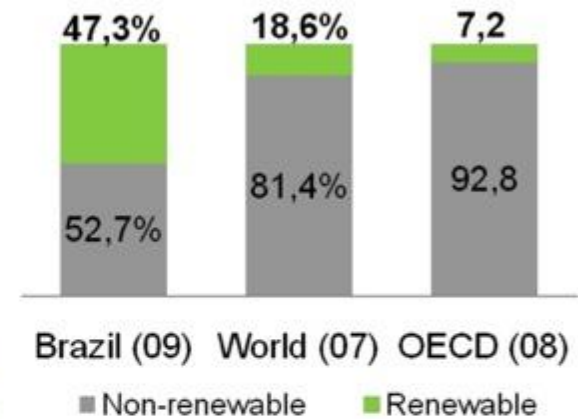
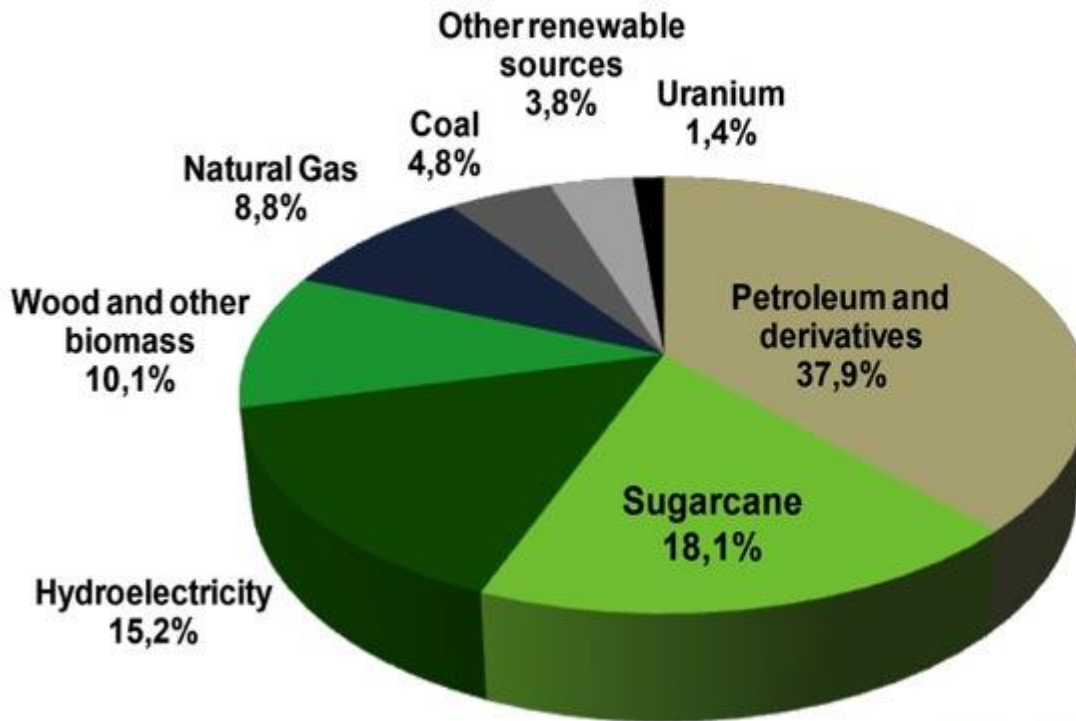
Leader in deep sea oil and gas prospection and extraction



2007- Tupi – 7000 m



Brazil Developed a Clean Energy Matrix



Obrigado

Brasília, 3 de setembro de 2015