

April 17, 2013

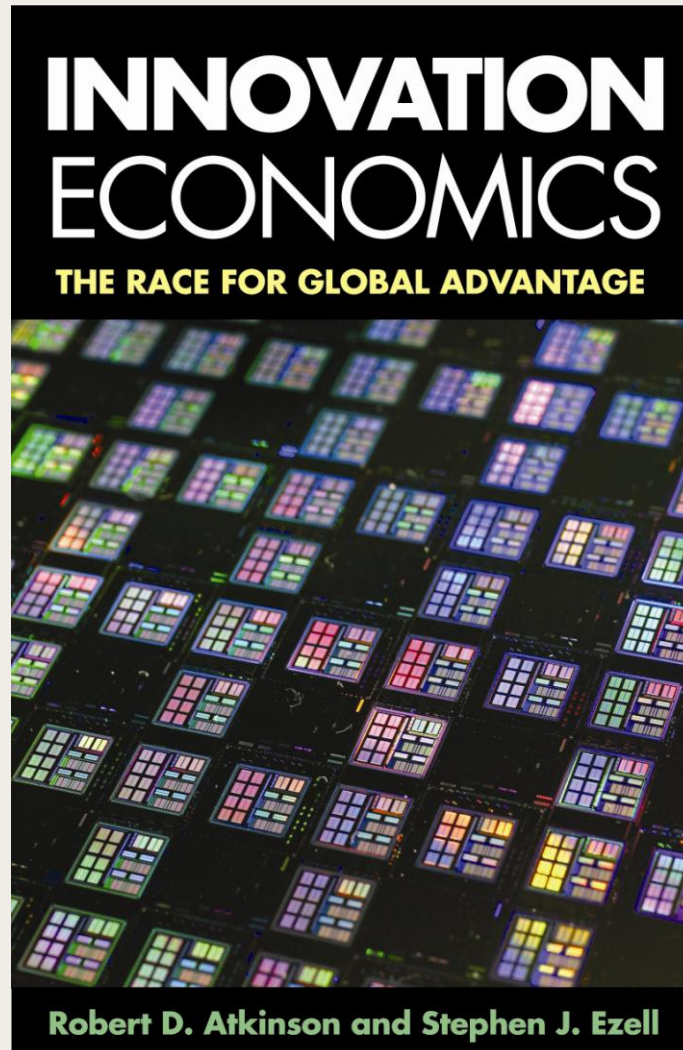
Building the Global Innovation Economy

Crisis, Cooperation, and Change within the Global Landscape Conference

Stephen Ezell, Senior Analyst

Information Technology and Innovation Foundation

- Innovation Economics: The Race for Global Advantage



Rob Atkinson



Stephen Ezell

**Yale University Press
September 2012**

■ Today's Presentation

1

The Global Innovation Landscape

2

Maximizing Innovation: Country Level

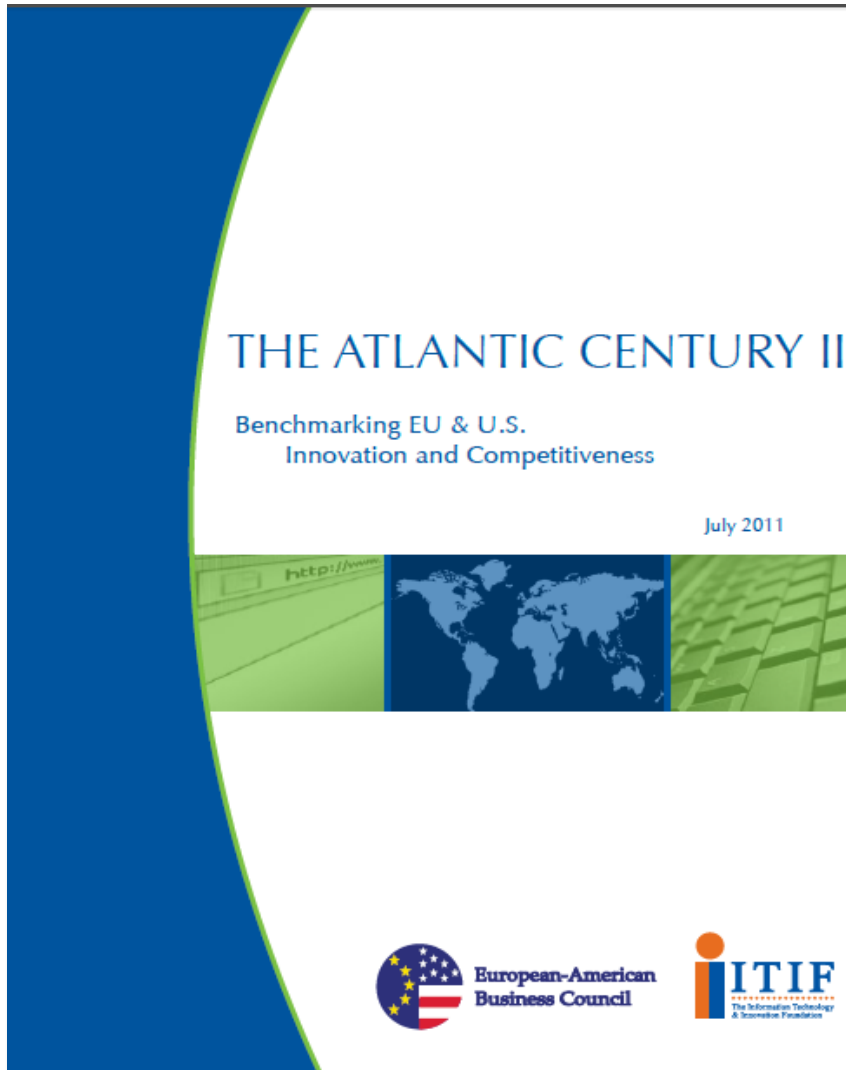
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Maximizing Innovation: Global Level

■ U.S. Economy Significantly Underperforming

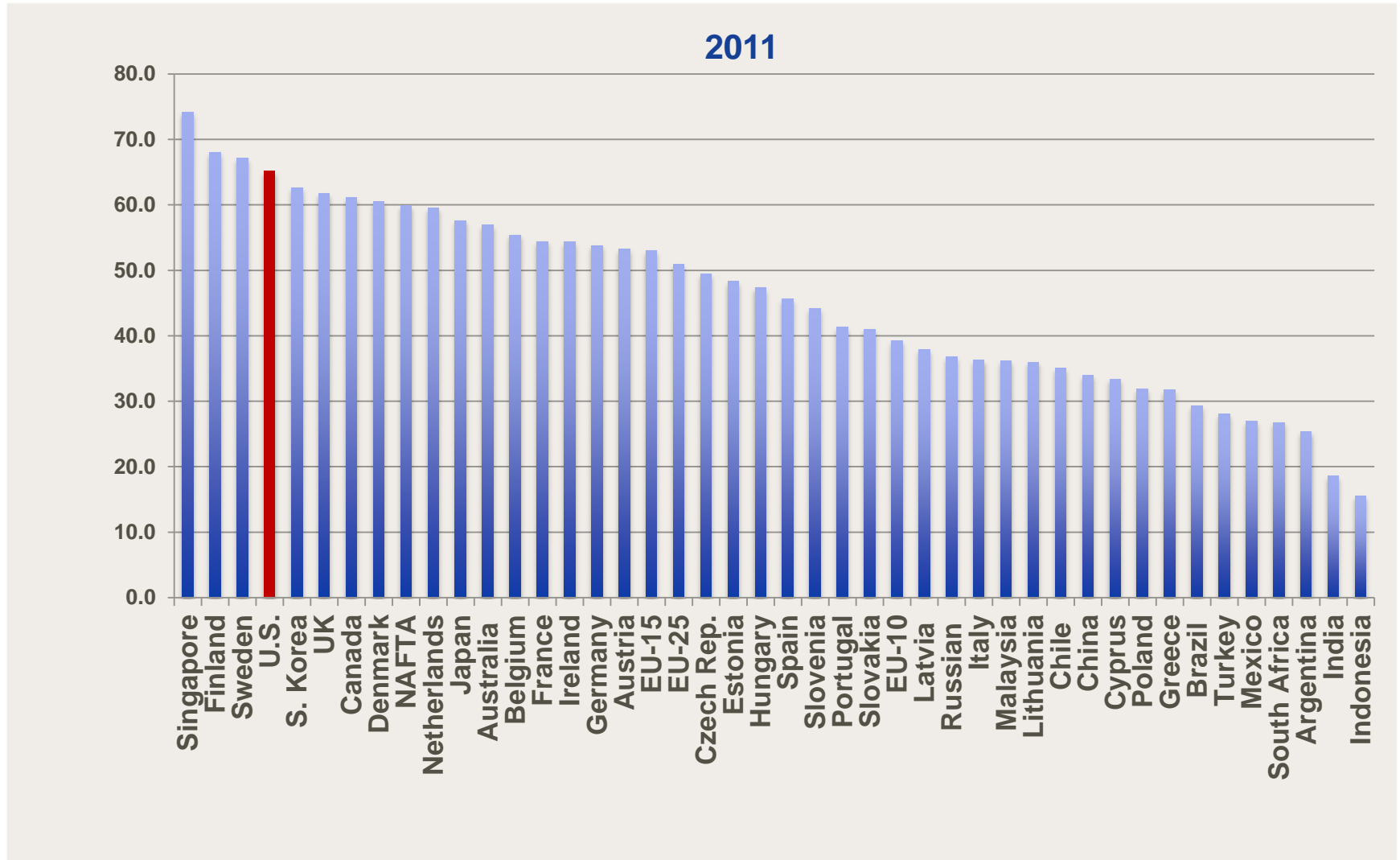
- Median household incomes stagnant since 1983
- Labor force participation rate lowest since 1979
- \$7 trillion trade deficit over past decade
- \$100B/year deficit in “advanced technology products”
- Average national debt per taxpayer: \$150K

■ The Atlantic Century II

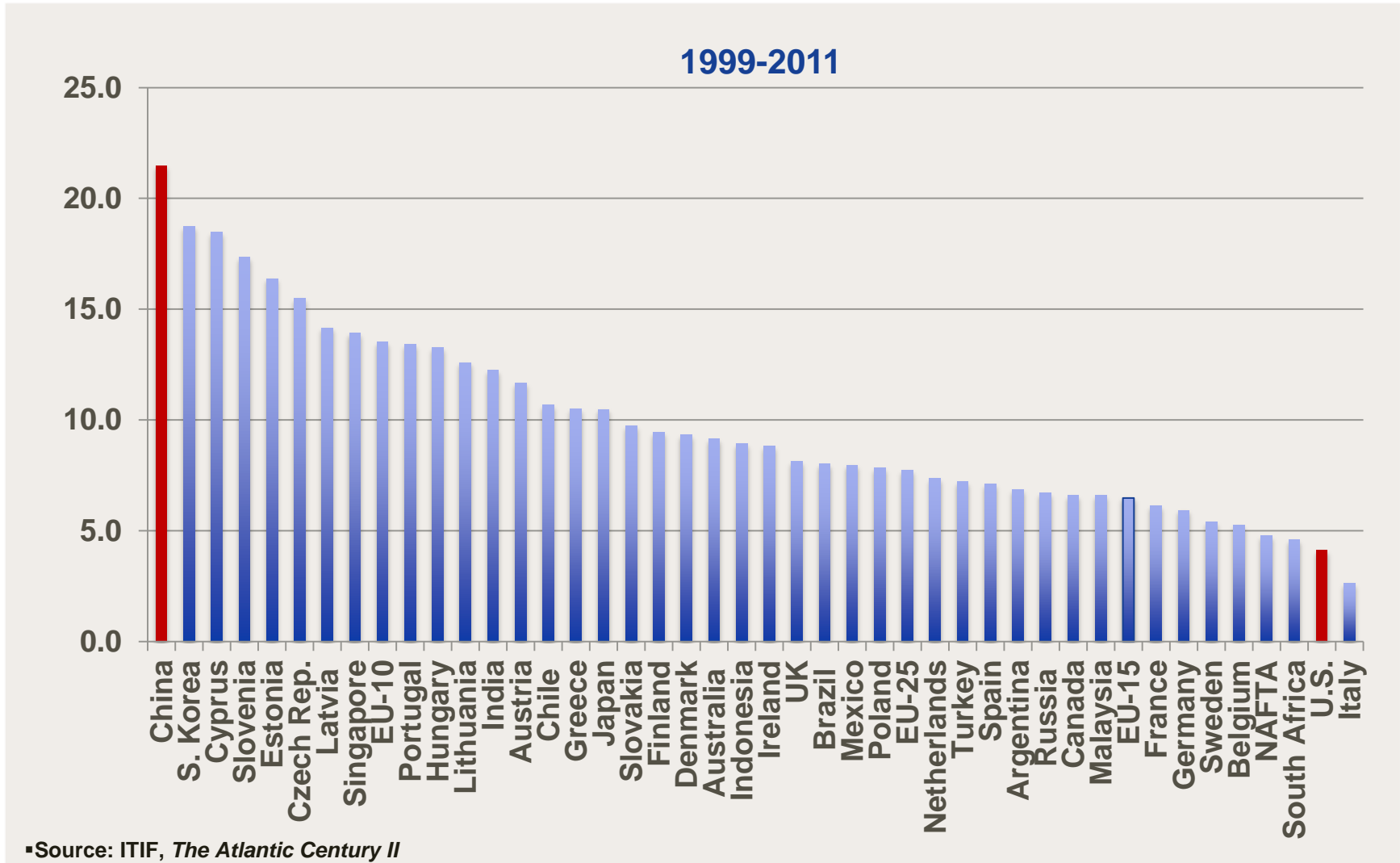


- **The Study:**
Compares innovation-based competitiveness of 44 nations and regions.
- **16 indicators:**
Including corporate and government R&D, scientists and engineers, new firms, corp. tax, productivity growth and others.

Overall Score for Global Competitiveness and Innovation



■ U.S. Second to Last at Improving Innovation Capacity



- Companies Went From Shopping the States...



- ...To Shopping the World



■ Countries Introducing Innovation Strategies/Agencies

Country	Has Articulated a National Innovation Strategy?	National Innovation Agency/Foundation	Year Agency Introduced
Brazil	Yes	Brazil Innovation Agency	1967
China	Yes	Ministry of Science and Technology	1998
Denmark	Yes	Danish Agency for Science, Technology, and Innovation	2006
Finland	Yes	Tekes	1983
France	Yes	OSEO	2005
India	Yes	National Innovation Foundation	2000
Ireland	Yes	Forfas	1994
Italy	Yes	ENEA (National Agency for New Technologies, Energy and the Environment)	1999
Japan	Yes	New Energy and Industrial Technology Development Organization (NEDO)	1980
Korea	Yes	Korea Industrial Technology Foundation	2001
The Netherlands	Yes	Senter Novem	2004
Norway	Yes	Innovasjon Norge	2004
Portugal	Yes	Agência de Inovação	2003
South Africa	Yes	National Advisory Council on Innovation	2006
Sweden	Yes	VINNOVA	2001
Taiwan	Yes	Industrial Technology Research Institute	1973
Thailand	Yes	National Innovation Agency	2003
United Kingdom	Yes	Department of Business, Innovation, and Skills	2009
United States	Yes	N/A	N/A
Uruguay	Yes	National Research and Innovation Agency (ANII)	2008

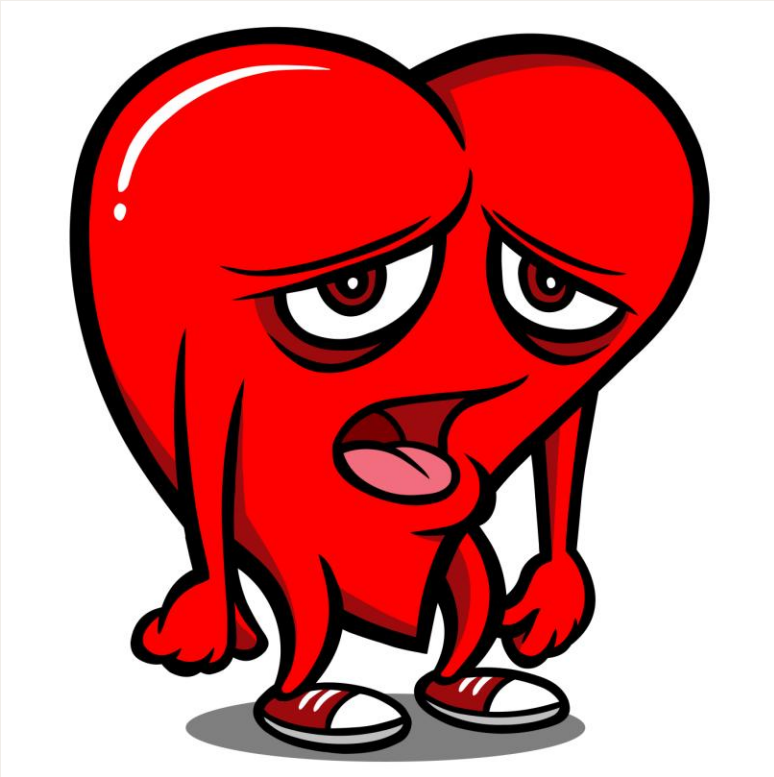
- While the U.S. Has Failed to Respond



■ U.S. Now a Less Attractive Location for Investment

- Faltering science and research funding
- Highest statutory corporate tax rate in OECD
- 27th most generous (& unstable) R&D tax credit
- Self-destructive high-skill immigration policy
- Faltering education system
- Inadequate physical infrastructure
- Insufficiently deployed advanced IT application platforms (e.g., smart grid, health IT, etc.)

- Need to Strengthen the Heart of our Economy



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■ Boosting National Innovation Competitiveness

1. Combat Resistance to Innovation

“There is nothing more difficult to execute, nor more dubious of success, nor more dangerous to administer than to introduce a new system of things, for he who introduces it has all those who profit from the old system as his enemies, and he has only lukewarm allies in those who might profit from the new system.”

- Machiavelli, *The Prince*



■ Boosting National Innovation Competitiveness

2. Embrace “Innovation Economics”



Paul Krugman

“Productivity growth is the single most important factor to our economic well-being. *But it is not a policy issue, because we are not going to do anything about it.*”

Neoclassical economists focus on allocative efficiency.



Joseph Schumpeter

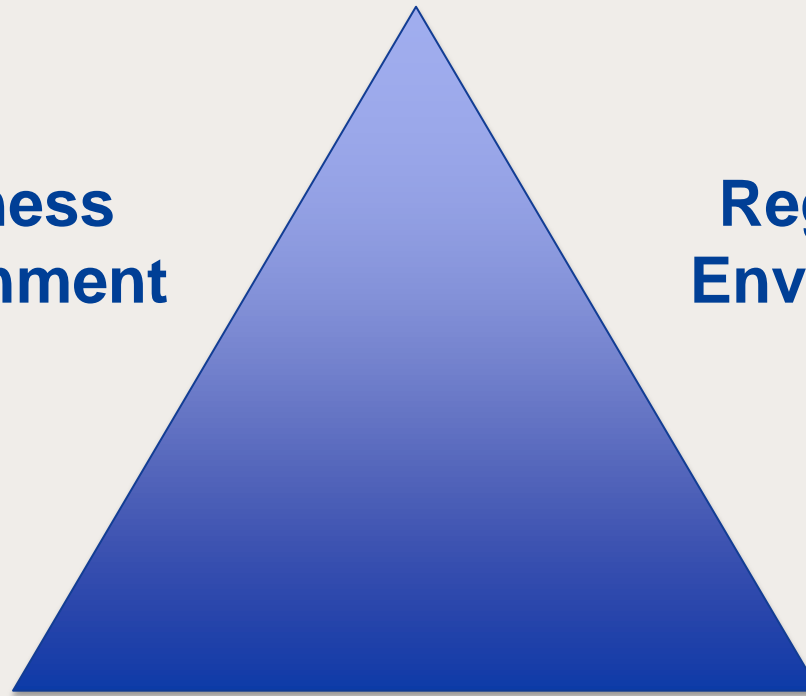
1. The central goal of economic policy should be to spur higher productivity and greater innovation.
2. Markets relying on price signals alone will not always be as effective as smart public-private partnerships in spurring higher productivity and greater innovation.

■ Boosting National Innovation Competitiveness

3. Get the “Innovation Triangle” Right

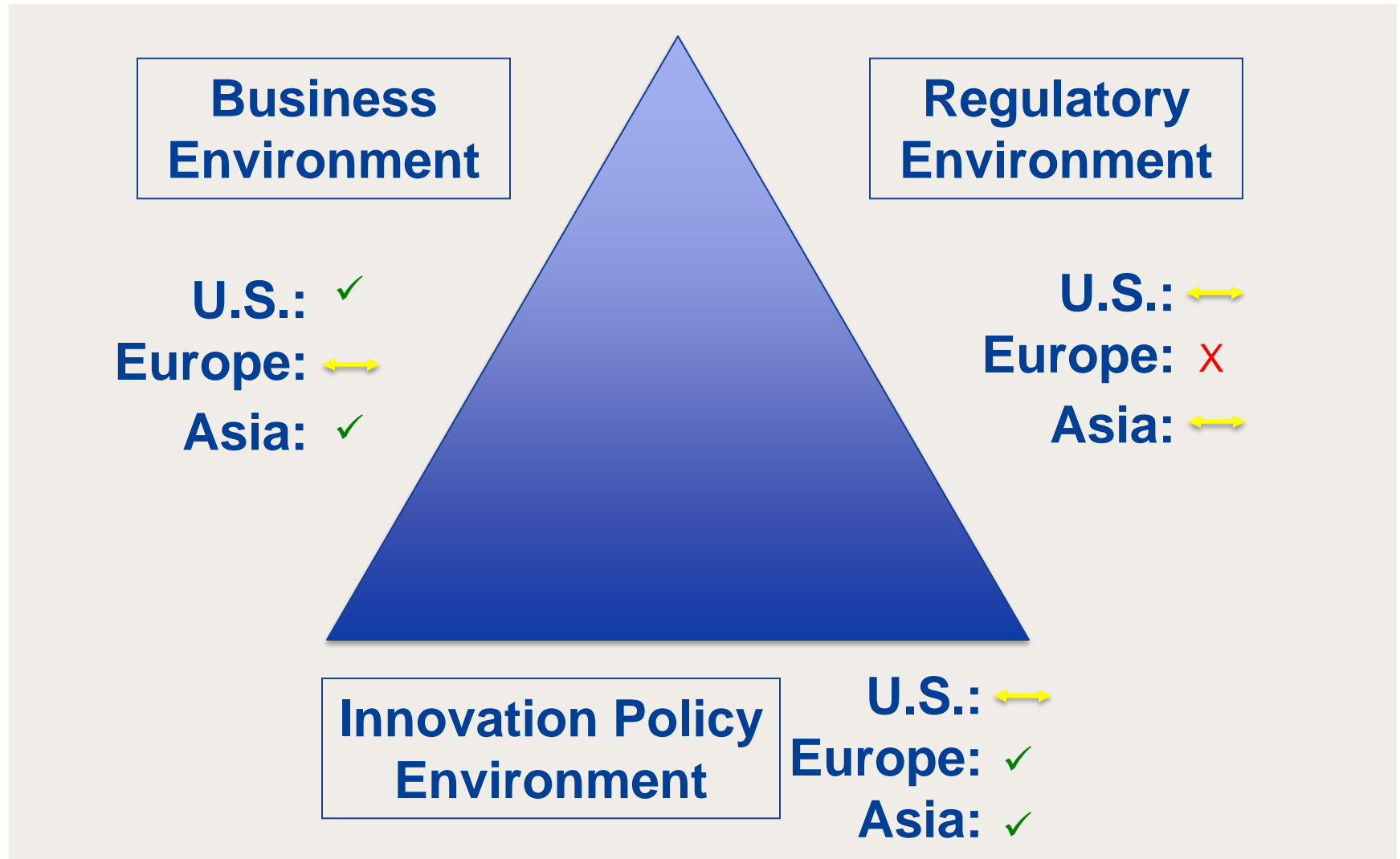
**Business
Environment**

**Regulatory
Environment**



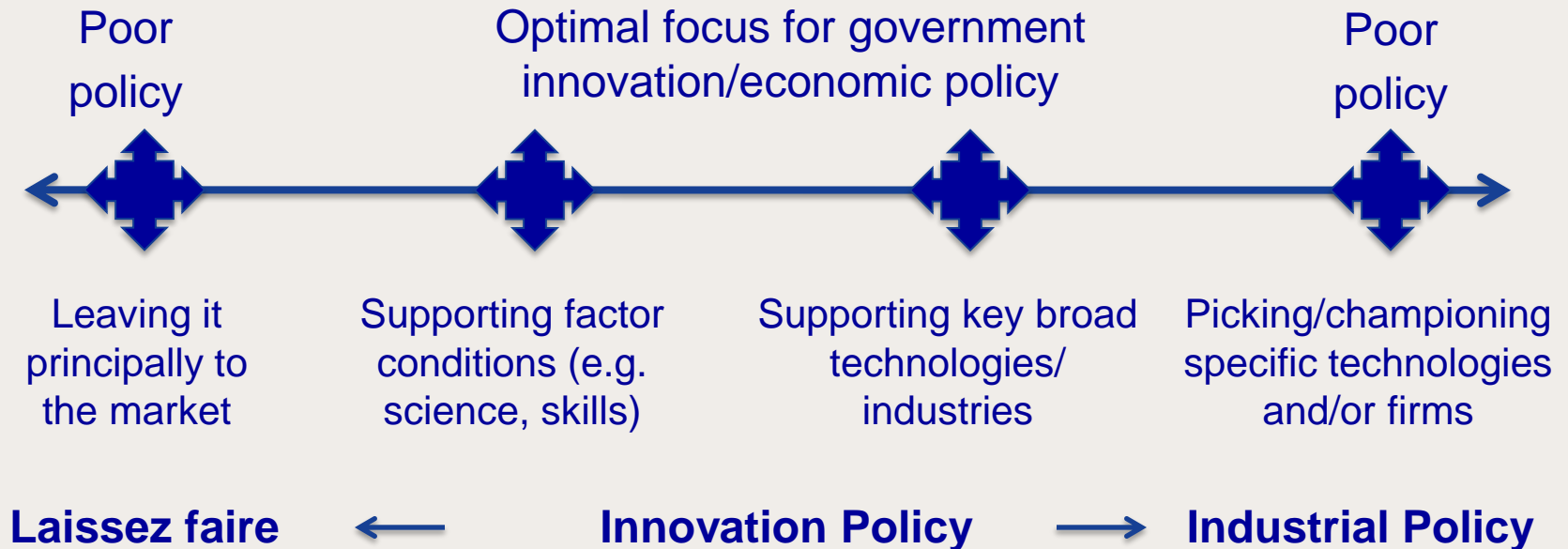
**Innovation Policy
Environment**

■ Boosting National Innovation Competitiveness



■ How to Boost National Innovation Competitiveness

4. Find an Appropriate Role for Government in Supporting Innovation



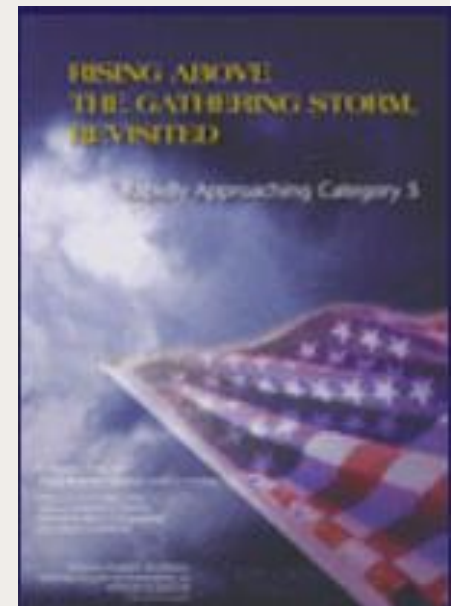
■ Boosting National Innovation Competitiveness

4. Find an Appropriate Role for Government in Supporting Innovation

- Get the “factor” (or “framework”) conditions right;
- Be a coordinator, convener, first adopter/procurer, prize-setter for innovations;
- Invest in basic scientific research;
- **But ALSO support PPPs that invest in applied/translational R&D and commercialization in sectors vital to an economy.**

■ What Is Innovation?

Being **first to acquire** new knowledge through leading-edge research; being **first to apply** that knowledge to create sought-after products and services, often through world-class engineering; and **being first to introduce** those products and services into the marketplace.



- National Network for Manufacturing Innovation (NNMI)
 - 15 Manufacturing Institutes accelerating innovation by **investing in industrially relevant applied research** in advanced manufacturing sectors and technologies.
 - Mission: Enhance U.S. industrial competitiveness by supporting development of technologies enabling U.S. production facilities to gain global market share.
 - NAMII Pilot Institute and three others announced.



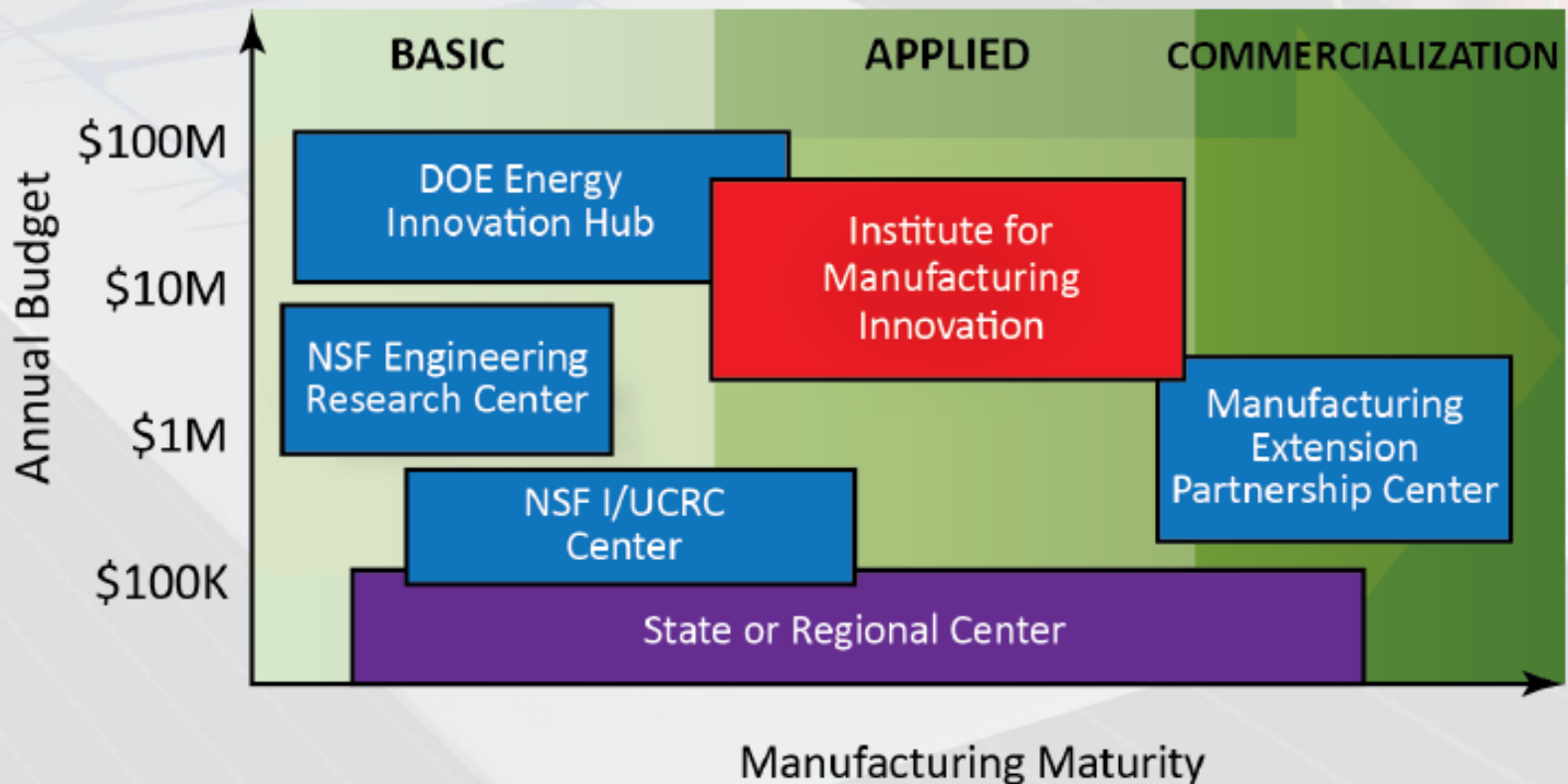
Focus on Scale Up – The Missing Middle

Basic science

Largely government funded

Commercialization

private sector owned/funded



Courtesy: Mike Molnar, AMNPO

■ Approach Being Increasingly Adopted Globally

■ **Germany's Fraunhofer System**

- \$2.5 billion annual investment in 65 Fraunhofer Centers

■ **UK Catapults** (January 2013)

- £1bn investment in technology and innovation centers
- The High-Value Manufacturing Catapult will be “a catalyst that transforms brilliant manufacturing ideas into valuable products and services.”

■ **Japan's New \$117B Stimulus Package** (1/10/13)

- \$2 billion to promote university-industry collaboration, including \$ to equip universities to conduct industrially relevant research

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■ A Bretton Woods for the Global Innovation Economy



■ Develop a New Global Innovation Consensus

1. Compete through “Good” not “Ugly” or “Bad” Innovation Policies

		World	
		Wins	Loses
Country	Wins	“Good” (e.g. R&D Support)	“Ugly” (e.g. IP Theft or Standards Manipulation)
	Loses	“Self-destructive” (e.g. Limiting High-Skill Immigration)	“Bad” (e.g. Import Substitution Industrialization)

■ Develop a New Global Innovation Consensus

2. Reform Global Economic Institutions to Focus on Innovation

- 1) No longer promote export-led growth as the key solution to economic development .
- 2) Focus on increasing productivity of domestic sectors.
- 3) Tie development assistance to countries' abandoning innovation mercantilism.



■ Develop a New Global Innovation Consensus

3. Create a Global Science and Innovation Foundation (GSIF).



Thank You

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