

September 2, 2014

Moving Forward: The Challenge of the Future

*Swedish Network for Innovation and Technology Transfer
Support - Innovation by Collaboration Conference*

Stephen Ezell, Senior Analyst

Information Technology and Innovation Foundation

ITIF is a public policy think tank committed to articulating and advancing a pro-productivity, pro-innovation, and pro-technology public policy agenda internationally, in Washington, and in U.S. states.

ITIF focuses on:

- Innovation processes, policy, and metrics
- Science policy related to economic growth
- IT and economic productivity
- Innovation and trade policy
- Clean energy and life sciences innovation



■ Today's Presentation

1

Framing the Modern Global Innovation Economy

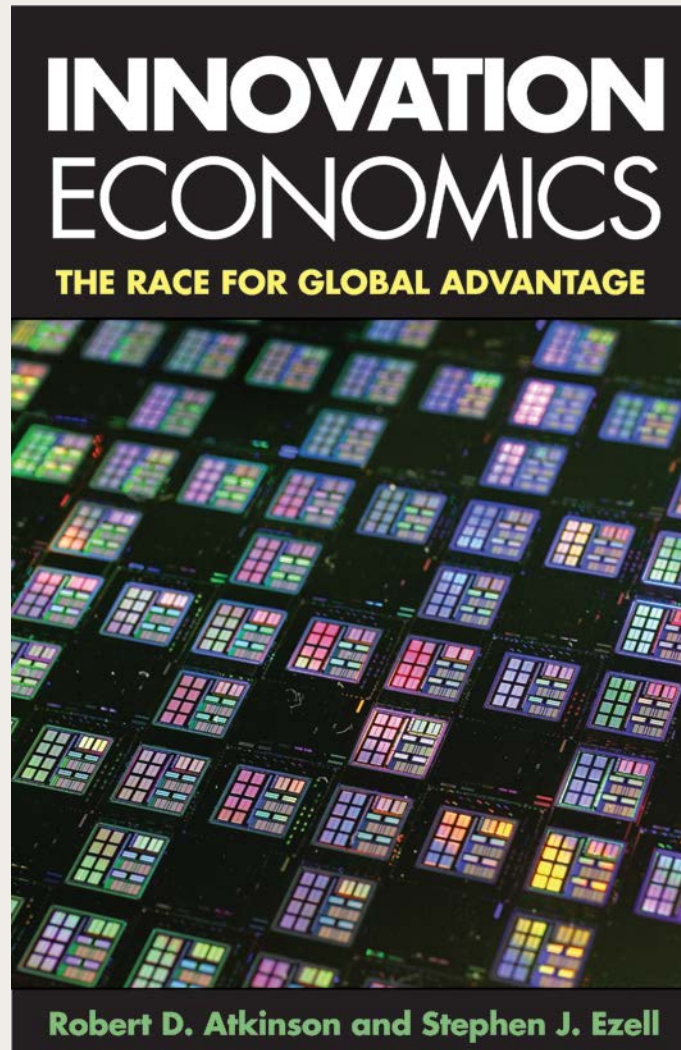
2

How the United States and Sweden are Faring in the Global Innovation Economy

3

Policy Recommendations to Boost Innovation, Collaboration, and Technology Transfer

- Innovation Economics: The Race for Global Advantage



Rob Atkinson



Stephen Ezell

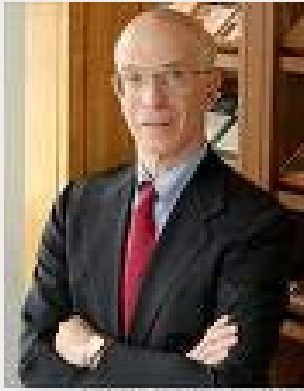
**Yale University Press
September 2012**

■ Why Does Innovation Matter?

- Technological innovation has been responsible for as much as three-quarters of economic growth post-WWII.
- More than 90% of the variation in the growth of income per worker across countries is attributable to innovation.



■ The Need for an “Innovation Economics” Approach



Alan Blinder

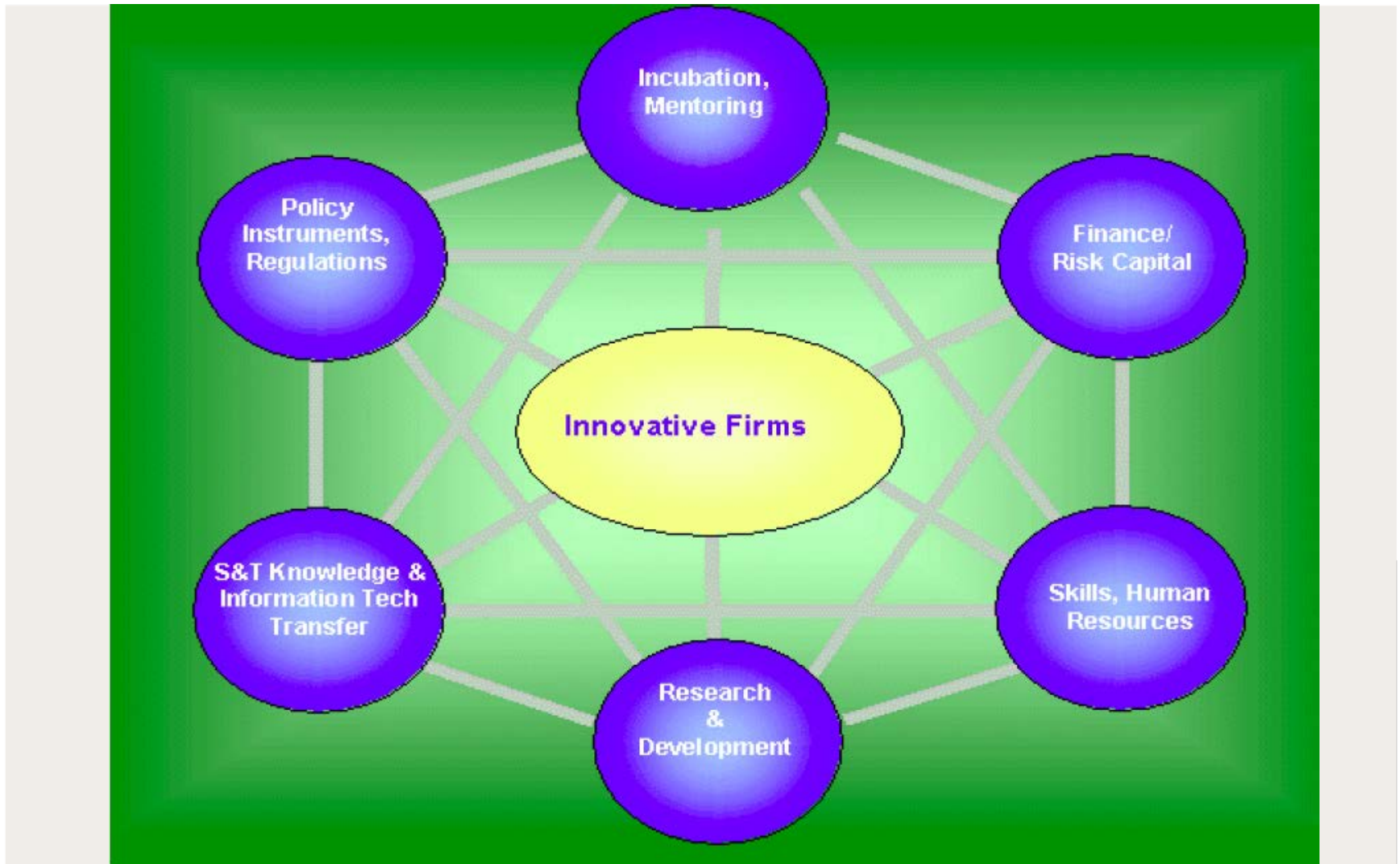
“Nothing—repeat, *nothing*—that economists know about growth gives us a recipe for adding a percentage point or more to a nation’s growth on a sustained basis.”



Joseph Schumpeter

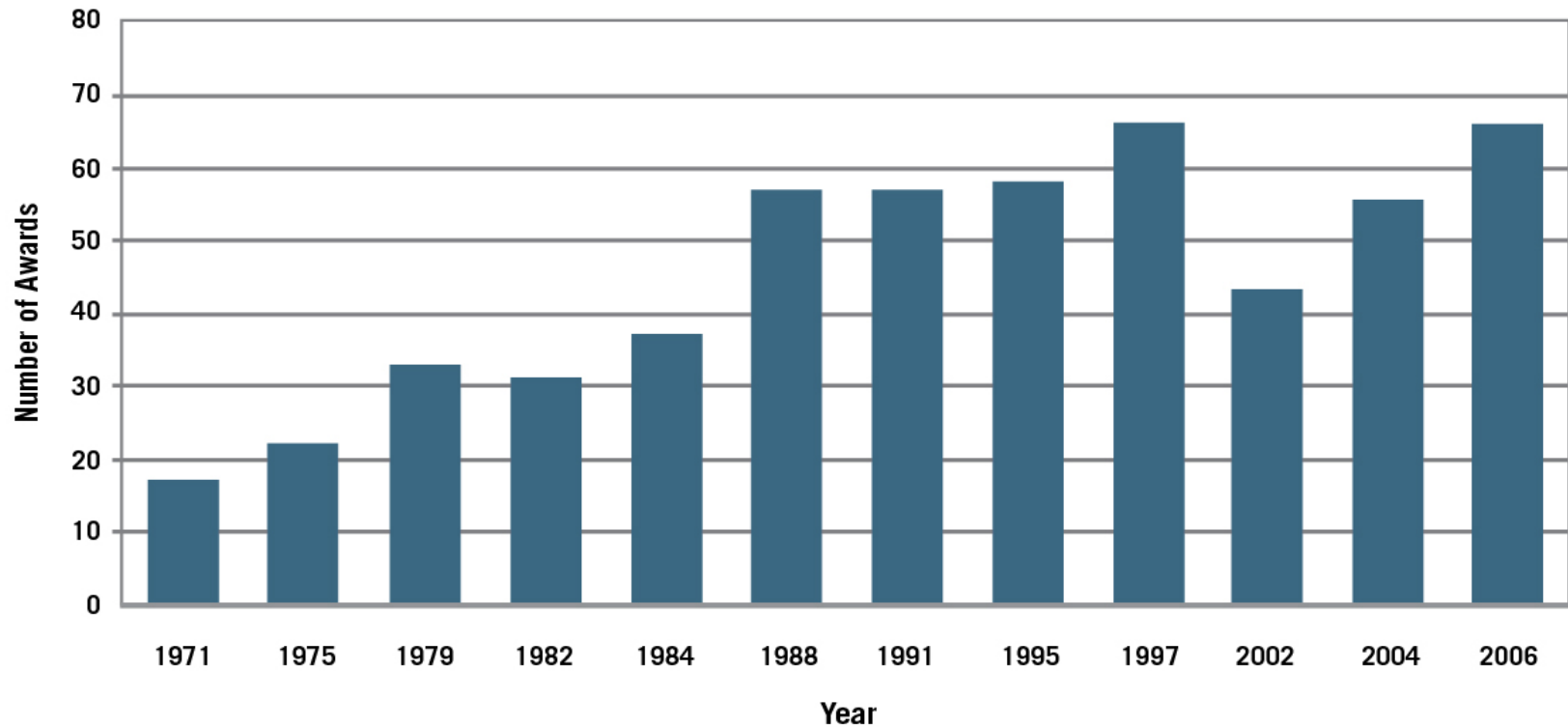
1. The central goal of economic policy should be to spur higher productivity and greater innovation.
2. Markets relying on price signals alone will not always be as effective as *smart public-private partnerships* in spurring higher productivity and greater innovation.

- Innovation is a Product of Institutions and Systems



The New Innovation System is Intensely Collaborative ...in the United States

Innovation Awards to Interorganizational Collaborations



Source: Fred Block and Michael Keller, "Where Do Innovations Come From? Transformations in the U.S. National Innovation System, 1970-2006, (ITIF, 2008).

■ ...Across Europe

Findings from the EU-PatVal Survey

15.0%

of patents developed with
external co-inventors



15.8%

of patents developed with
formal collaborations

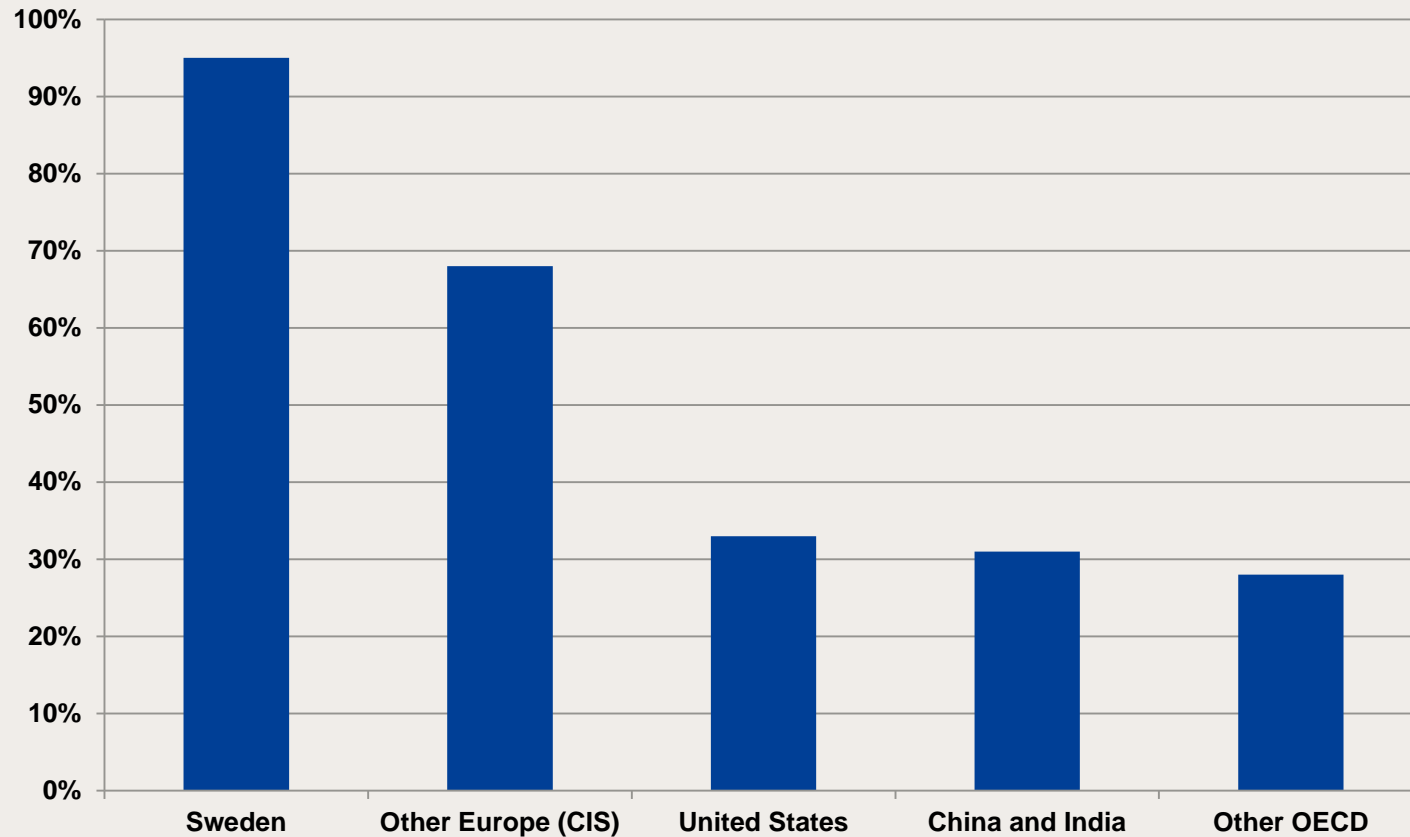
20.5%

of patents developed in collaboration
with other partners

Source: European Union, "The Value of European Patents: Evidence from a Survey of European Inventors."

■ ...And Particularly in Sweden

Percentage of nations' firms that cooperate in innovation activities



Source: C. Chaminade, J. Zabala, A. Treccani, "The Swedish National Innovation System and its relevance for the emergence of global innovation networks."

■ Today's Presentation

1

Framing the Modern Global Innovation Economy

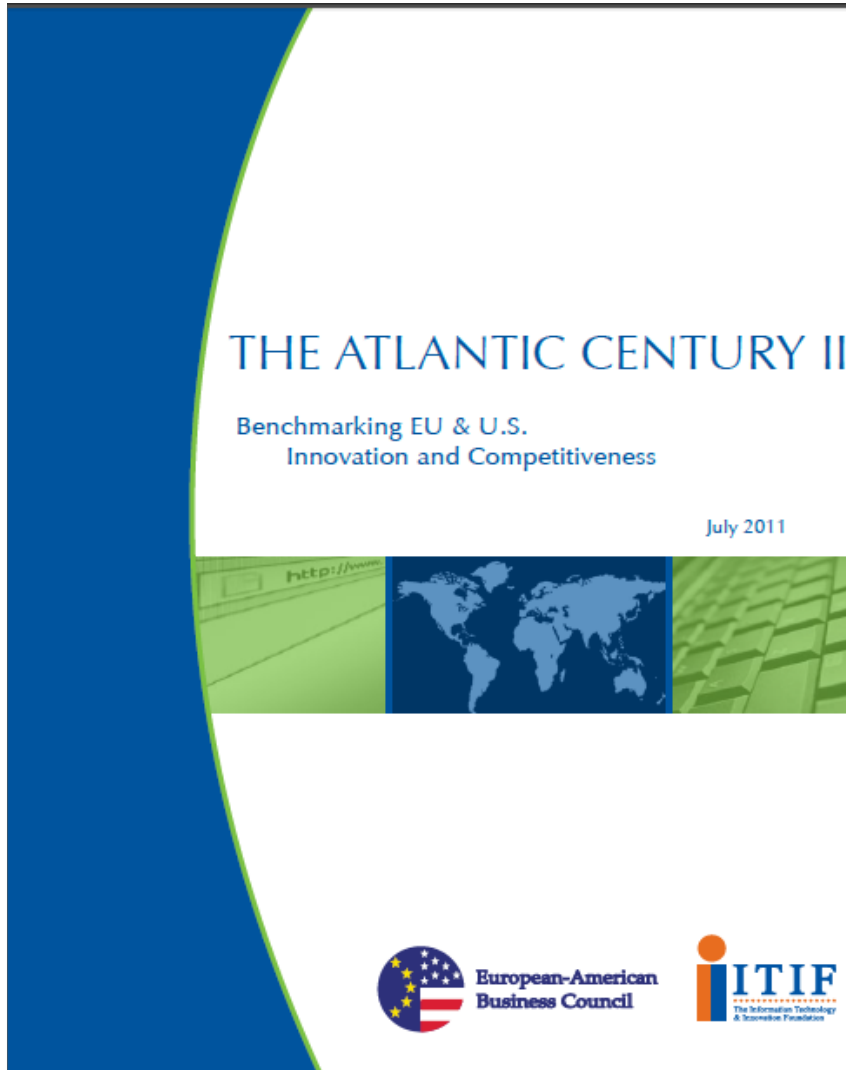
2

How the United States and Sweden are Faring in the Global Innovation Economy

3

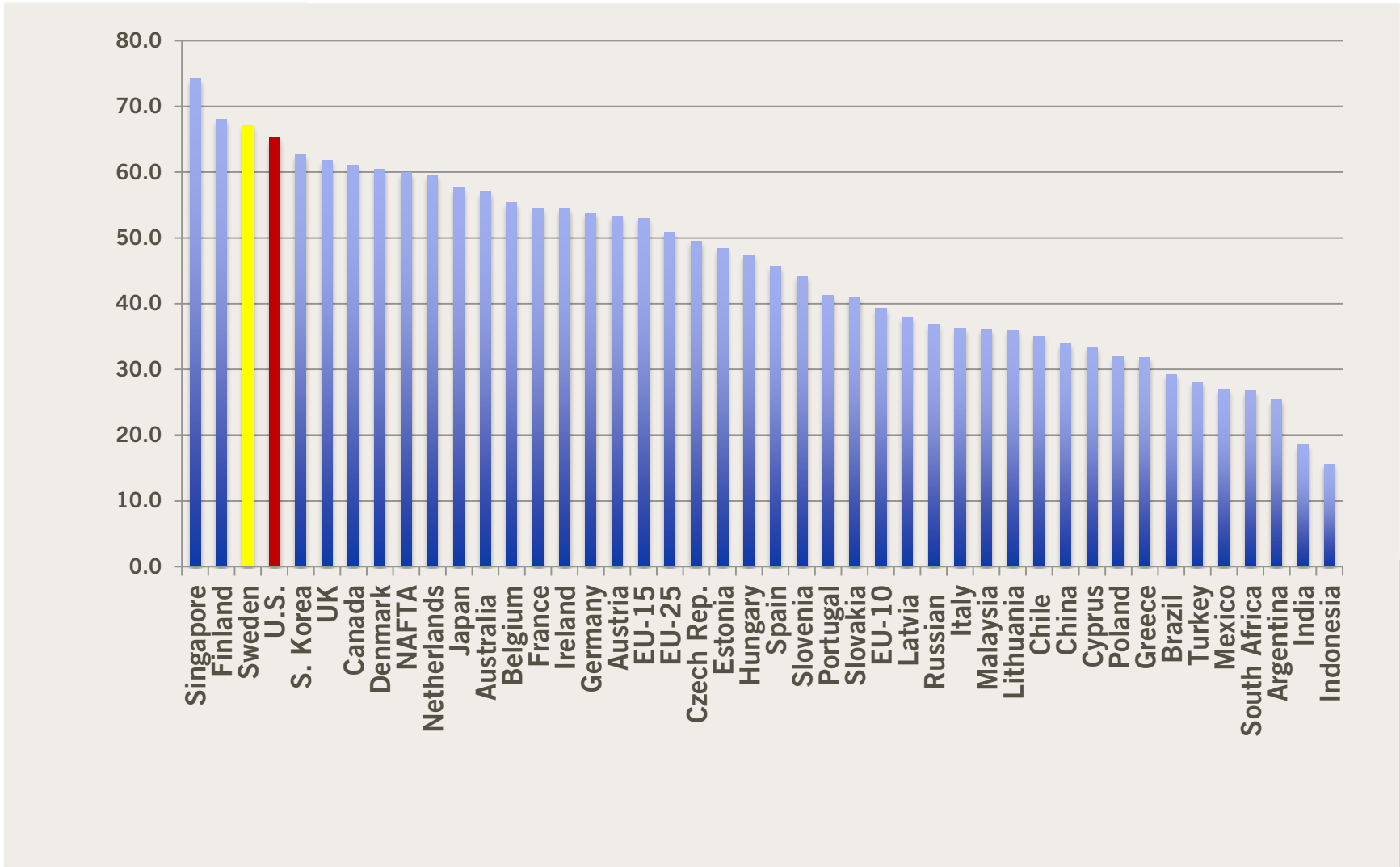
Policy Recommendations to Boost Innovation, Collaboration, and Technology Transfer

■ The Atlantic Century II

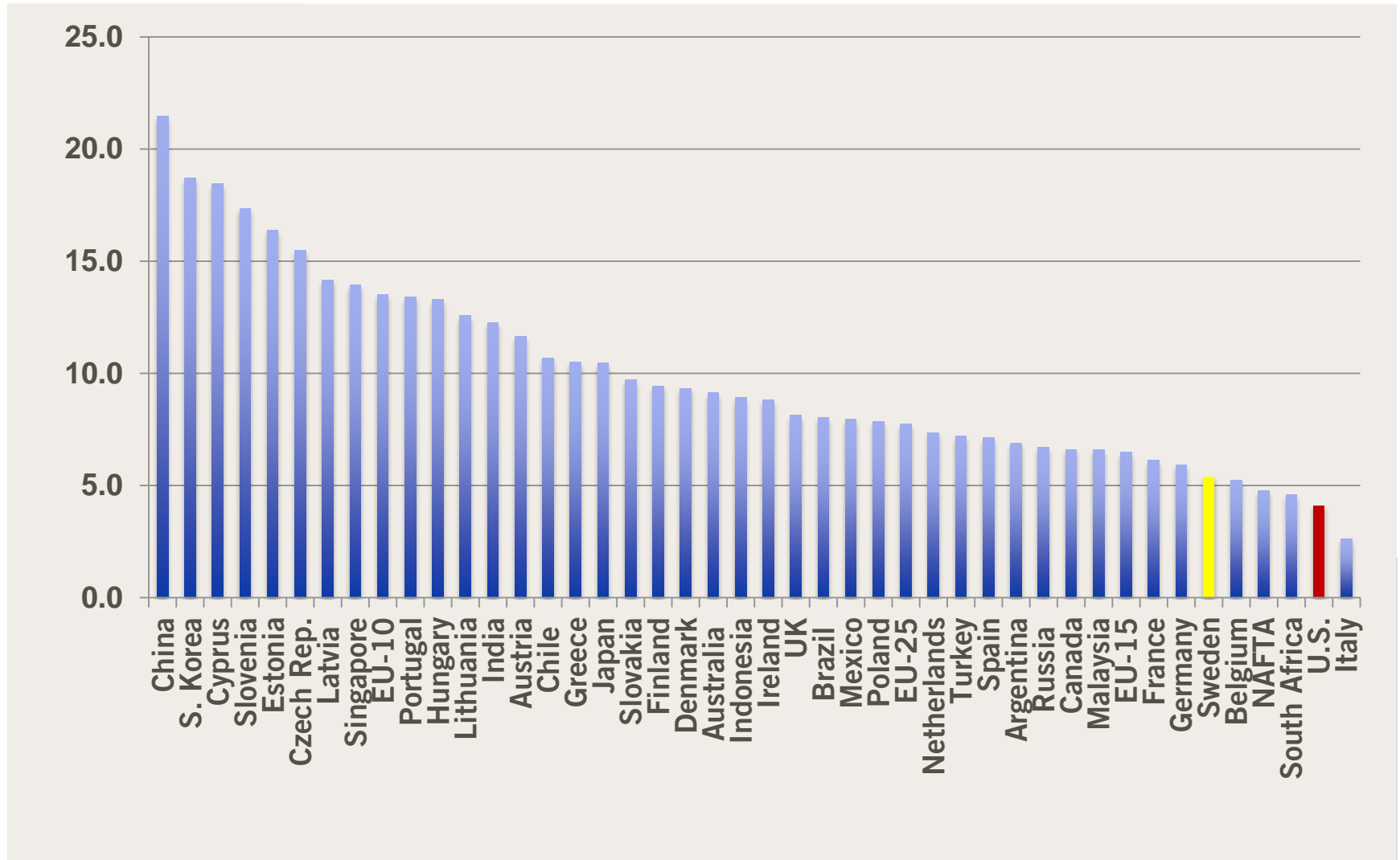


- **The Study:** Compares the innovation-based competitiveness of 44 nations and regions.
- **16 indicators:** Including corporate and government R&D, scientists and engineers, new firms, corp. tax, productivity growth and others.

Overall Score for Global Competitiveness and Innovation (2011)



Overall Change Score (1999-2011)





■ Weaknesses of the U.S. Innovation System

1. Resting on our laurels; believe we'll always be #1 without having to do anything about it.
2. We lack a political consensus that technology and innovation drive economic growth.
3. Relative R&D investment shrinking; R&D portfolio not optimized for economic growth.
4. We don't do a good enough job commercializing our technological innovations and manufacturing them in America.
5. Policy framework underpinning innovation—Tax, Talent, Investment, Infrastructure, etc.—increasingly less globally competitive.



■ Strengths of Sweden's Innovation System

1. National attention to innovation policy: *2012 Innovation and Research Bill; The Swedish Innovation Strategy.*
2. Strong and growing investments in the core building blocks of innovation: basic scientific research, education, and infrastructure.
3. Willingness to unabashedly identify the industries in which Sweden seeks to lead world (e.g., life sciences, renewable energy, etc.)

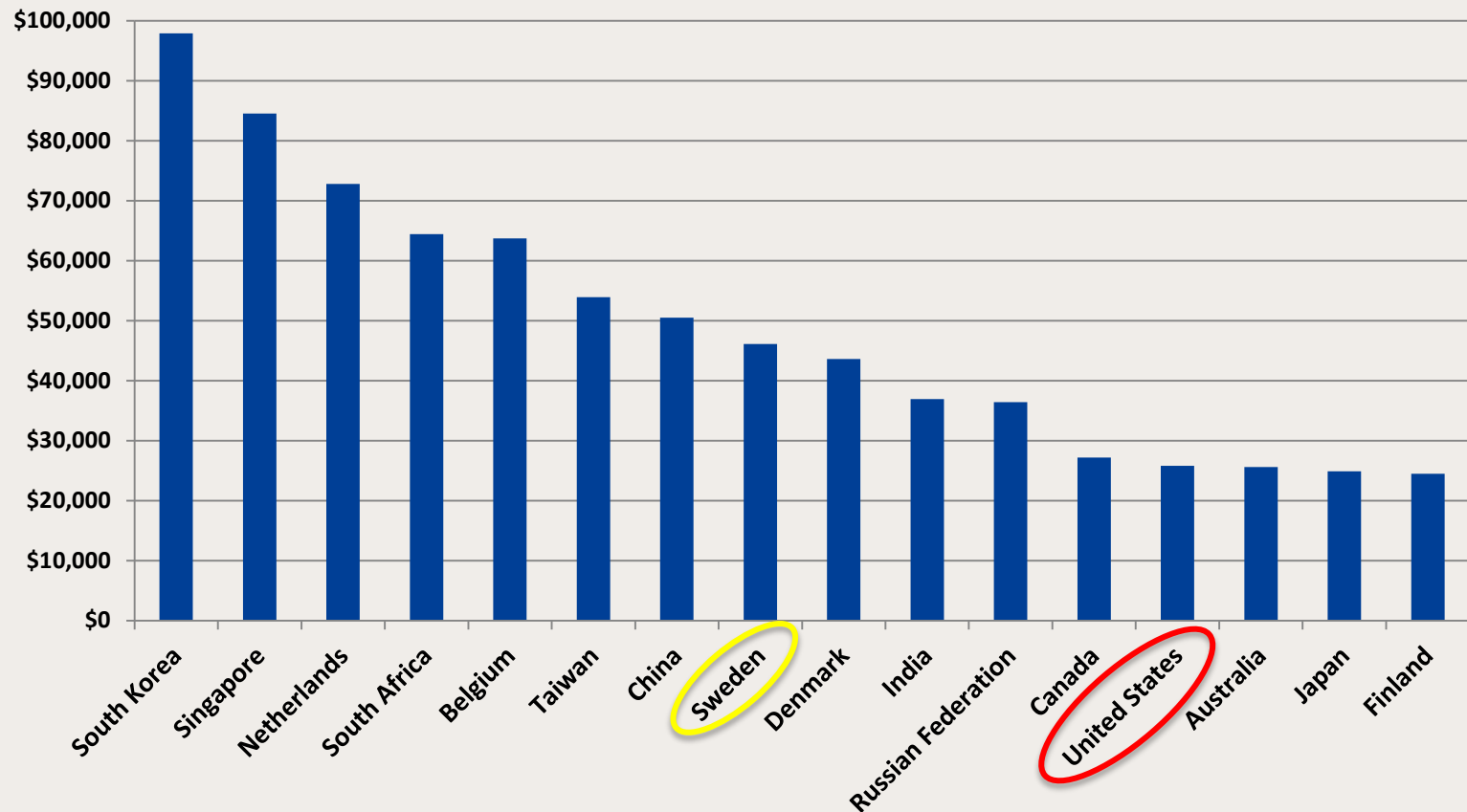


■ Weaknesses of Sweden's Innovation System

1. “Ivory tower” mentality too-often alive in Swedish universities; stronger university-industry partnerships needed.
 - *“There is currently no effective platform to industrialize ideas from higher education institutions in the life sciences sector.”*

■ Extent of University-Industry Collaboration

Average value of industry funding per university researcher



Source: *Times Higher Education*, "World Academic Summit Index."



■ Weaknesses of Sweden's Innovation System

1. “Ivory tower” mentality too-often alive in Swedish universities; stronger university-industry partnerships needed.
 - *“There is currently no effective platform to industrialize ideas from higher education institutions in the life sciences sector.”*
2. Entrepreneurship/new firm creation (14th in ACII) trails world leaders.
3. Lack of innovation orientation in high-skill immigration policy.

■ Today's Presentation

1

Framing the Modern Global Innovation Economy

2

How the United States and Sweden are Faring in the Global Innovation Economy

3

Policy Recommendations to Boost Innovation, Collaboration, and Technology Transfer

Extol Technology Transfer and Commercialization's

■ Central Importance to the Global Innovation Economy

- It's what *tangibly* makes the world a better place, improves standards of living, and grows national economies.
- Today, the best university TTOs in the world recognize:
 - Universities' technology commercialization programs are a *critical differentiator* in attracting students and faculty talent.
 - Incentives and leadership are vital to changing cultures.
 - It's about *impact* and *outcomes*; not about licensing *income*.

■ Policies to Bolster Tech Transfer/Commercialization

- ✓ Use innovation vouchers (Austria, Germany, Netherlands)
- ✓ Establish common university/industry technology licensing agreements (U.S.)
- ✓ Make university-funded research available to companies and don't license/charge unless they can profit from the technology.
- ✓ Have all PI grant awards include page on commercialization potential of research.

■ University Policies to Drive Innovation

- ✓ Allocate R&D funding, in part, based on performance and ability to attract industry investment (Finland, Sweden)
- ✓ Increase *permeability*: Take faculty members' commercial experiences into account in tenure decisions; allow faculty to suspend tenure to pursue commercialization opportunities
- ✓ Develop university entrepreneurship rankings
- ✓ Create new institutions (e.g. Olin College in Massachusetts)

■ Tax Policies to Drive Innovation

- ✓ More generous R&D tax credits (U.S. 26th; Sweden 39th of 41)
- ✓ Collaborative R&D tax credits (Canada, Chile, France, Korea)
- ✓ Patent boxes (Belgium, China, Netherlands, UK)

■ Top 5 U.S. Technology Transfer Efforts/Initiatives

1. The “TRANSFER” Act

- Provides \$ to pilot innovative approaches to technology transfer.

2. National Science Foundation “iCorps” Program

- Mentoring program teaches interested scientists how to become entrepreneurs; 50% success rate.

3. NIH “NCATS” Program

- Bringing a “challenge model” to technology transfer.

4. NIST’s Creation of a “National Innovation Marketplace”

5. Increased priority of technology transfer in evaluation of U.S. national laboratories’ performance.

■ We Need a New Global Innovation Consensus

That changes the basis for innovation competition among nations.

		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)

■ We Need a New Global Innovation Consensus

1. Create a Global Science and Innovation Foundation (GSIF).
2. Designate a large “grand challenge” that the U.S. and Europe work in collaboration/partnership to solve (and share the resulting IP).



Tack!

sezell@itif.org

Follow ITIF:



Facebook: facebook.com/innovationpolicy



Blog: www.innovationpolicy.org



YouTube: www.youtube.com/user/techpolicy



Website: www.itif.org



Twitter: [@itifdc](https://twitter.com/itifdc)

