

# “Contributors and Detractors”: Ranking Countries’ Impact on the Global Innovation System

Entrepreneurship and Small Business Research Institute

Stephen Ezell  
Vice President, Global Innovation Policy

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# About ITIF

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- One of the world's top science and technology think tanks.
- Formulates and promotes policy solutions that accelerate innovation and boost productivity to spur growth, opportunity, and progress.
- Focuses on a host of issues at the intersection of technology innovation and public policy:
  - Innovation processes, policy, and metrics
  - Science policy related to economic growth
  - E-commerce, e-government, e-voting, e-health
  - IT and economic productivity
  - Innovation and trade policy

# Today's Presentation

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- 1 Assessing the State of Global Innovation
- 2 ITIF's "Contributors and Detractors" Report
- 3 Maximizing Global Innovation
- 4 Bolstering Swedish Innovation

# Assessing the State of Global Innovation

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1. Growing recognition that innovation drives growth and progress; making it a global public good.
2. A fierce race for global innovation advantage has emerged.
3. Innovation policy is still largely conceived in terms of how it impacts national economic growth.
4. Yet the innovation policies pursued have significant positive and negative geographic spillovers.

# Nations' Policies Impact Global Innovation

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# Architecting a Global Economic and Trade System That Maximizes Global Innovation

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## *Innovation Industries Share 3 Distinct Characteristics:*

1. They compete by inventing next-generation products or services.
2. They are characterized by very high initial fixed costs (e.g., R&D/design), but low marginal costs.
3. They embody and depend on intellectual property.

# Architecting a Global Economic and Trade System That Maximizes Global Innovation

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*Four conditions must attain in the global economy for innovation-based industries and enterprises to flourish.*

1. Access to large markets (e.g., economies of scale)
2. No excess (e.g., non-market-based) competition
3. No forced requirements to unnecessarily fragment global production systems.
4. Protection of intellectual property rights.

# Therefore, Maximizing Global Innovation:

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- Requires *individual countries* to implement robust national innovation systems.
- Requires a *global economy and trading system* that enables innovative enterprises to flourish.

***So a ??: To what extent are individual countries implementing economic, innovation, and trade policies that enable global innovation to flourish?***



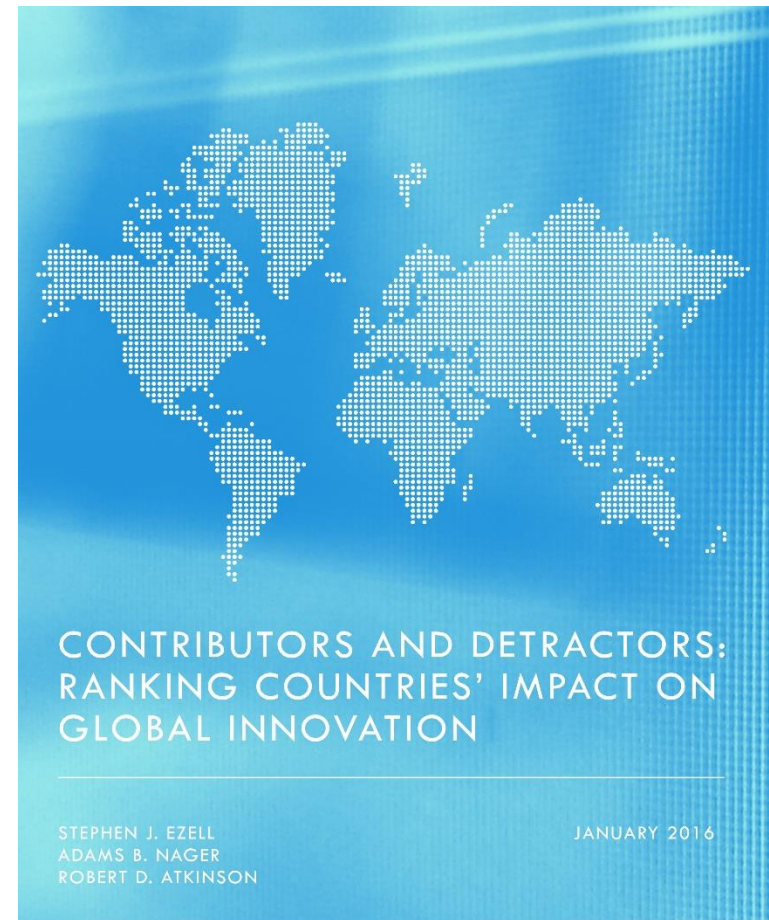
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# ITIF's "Contributors and Detractors" Report

- Assesses 56 countries on 27 indicators, grouped into "Contributions" and "Detractions" categories.
- Measures the extent to which, *on a per-capita basis*, countries' economic and trade policies contribute to, and detract from, global innovation.



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# Report Indicators - Contributions

Contributions Indicators (Weight=6)	Data Type	Category Weight
<b>Taxes</b>		2.5
Effective Corporate Tax Rates	Raw Number	
R&D Tax Credit Generosity	Raw Number	
Collaborative R&D Tax Credits	Binary Variable	
Innovation Boxes	Binary Variable	
Taxes on ICT Products	Raw Number	
<b>Human Capital</b>		2.5
Expenditures on Education	Composite Score	
Science Graduates	Raw Number	
Top-Ranking Universities	Composite Score	
Scientific Researchers	Raw Number	
<b>R&amp;D and Technology</b>		5
Government R&D Expenditures	Raw Number	
“Bayh-Dole-Like” Policy	Categorical Variable	
National Innovation Foundation	Binary Variable	
Research Citations	Composite Score	
Government Funding of University R&D	Raw Number	

# Report Indicators - Detractions

Detractions Indicators (Weight=4)	Data Type	Category Weight
<b>Balkanized Production Markets</b>		4
Non-tariff Trade Barriers	Raw Number	
Number of Types of LBTs	Categorical Variable	
Foreign Equity Restrictions	Raw Number	
Currency Manipulation	Categorical Variable	
Export Subsidies	Raw Number	
<b>IP Protections</b>		4
<i>Special 301 Report</i>	Categorical Variable	
Ginarte-Park Patent Rights Index	Raw Number	
Intellectual Property Protection	Composite Score	
IP and Reimbursement Environment Supporting Life Sciences Innovation	Composite Score	
Software Piracy Rate	Raw Number	
<b>Balkanized Consumer Markets</b>		2
Services Trade Restrictiveness	Raw Number	
Simple Mean Tariff Rate	Raw Number	
Tariffs on ICT Products	Raw Number	

# Report Methodology

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Factors that bolster the  
global innovation economy

14 Indicators

Weighted ↓ Standardized

3 Categories

Weighted ↓ Standardized

Contributions

Factors that hamper the  
global innovation economy

13 Indicators

Weighted ↓ Standardized

3 Categories

Weighted ↓ Standardized

Detractions

Weighted

Standardized

Final Score

# Results: Country Ranks

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Top 5

## Overall

1. Finland
- 2. Sweden**
3. United Kingdom
4. Singapore
5. The Netherlands
- 10. United States**

## Contributions

1. Singapore
2. Korea
3. Finland
- 4. Sweden**
5. United Kingdom
- 17. United States**

## Detractions

1. Finland
  2. The Netherlands
  3. Belgium
  4. Ireland
  - 5. Sweden**
  - 6. United States**
- 

Bottom 5

## Overall

52. Ukraine
53. Thailand
54. India
55. Indonesia
56. Argentina

## Contributions

52. Colombia
53. Argentina
54. Indonesia
55. Mexico
56. Costa Rica

## Detractions

52. Russia
  53. Argentina
  54. India
  55. China
  56. Thailand
-

# Sweden's Results

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## Sweden's Top 5 Indicators:

- Gov. Funding of University R&D
- Gov. R&D Expenditure per Citizen
- Expenditures on Education per Student
- Research Citations
- Top-Ranking Universities

## Sweden's Bottom 3 Indicators:

- (Use of) Collaborative R&D Tax Credits
- University Tech Transfer Policy
- R&D Tax Credit Generosity

# Relative Country Positions and Typologies



## Typologies

Schumpeterian

Adam Smithian

Advanced Asian Tiger

Innovation Mercantilist

EU Continentalist

EU Up and Comer

Innovation Follower

Traditional Mercantilist



# Results: Analysis

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- Countries' scores on Contributions and Detractions are positively correlated (0.60).

Suggests that countries that do more to support global innovation also do less to harm it.

- Countries that have better innovation policies have better innovation outcomes.
- High correlation (0.84) between “Contributions” score and two measures of innovation outcomes from the *2015 Global Innovation Index* (“Creative Outputs” and “Knowledge & Technology”)

# Results: Europe Among Top Contributors

<b>Rank</b>	<b>Taxes</b>	<b>Human Capital</b>	<b>R&amp;D and Technology</b>
1	<b>Portugal</b>	<b>United Kingdom</b>	Korea, Rep.
2	<b>Hungary</b>	<b>Iceland</b>	Japan
3	<b>Spain</b>	<b>Ireland</b>	Israel
4	<b>France</b>	United States	<b>Finland</b>
5	<b>Netherlands</b>	Singapore	<b>Sweden</b>
6	<b>United Kingdom</b>	<b>Switzerland</b>	Singapore
7	<b>Bulgaria</b>	<b>Denmark</b>	<b>Germany</b>
8	<b>Ireland</b>	New Zealand	<b>Denmark</b>
9	Canada	<b>Finland</b>	Taiwan
10	<b>Norway</b>	<b>Sweden</b>	United States

# Results: Europe Does Well on “Detractors”

Rank	Country	Detractors	Balkanized Production Markets	IP Protections	Balkanized Consumer Markets
1	Finland	13.9	0.86	0.92	0.42
2	Netherlands	12.4	0.68	0.81	0.64
3	Belgium	11.3	0.68	0.72	0.44
4	Ireland	11.2	0.70	0.71	0.38
5	Sweden	11.1	0.61	0.73	0.54
6	United States	10.4	0.25	0.98	0.75
7	United Kingdom	10.4	0.43	0.84	0.55
8	Germany	10.3	0.52	0.73	0.53
9	Austria	9.7	0.45	0.66	0.66
10	Estonia	9.5	0.73	0.34	0.57
11	Norway	9.2	0.41	0.57	0.80
12	Portugal	8.4	0.61	0.38	0.43
13	New Zealand	7.9	0.34	0.55	0.59
14	France	7.8	0.16	0.81	0.46
15	Latvia	7.1	0.61	-0.01	0.87
16	Slovak Republic	6.7	0.58	0.16	0.43
17	Czech Republic	6.5	0.49	0.25	0.42
18	Slovenia	6.5	0.56	0.08	0.58
19	Spain	6.3	0.41	0.24	0.54
20	Denmark	6.2	0.04	0.68	0.53

# The EU Roadmap for Global Collaboration

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- Lower trade barriers between countries; establish common markets.
- Work toward freedom of movement of labor and capital
- Collaborative research efforts: Horizon 2020
- Common patent office, respect of IP rights

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# Maximizing Global Innovation

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1. Embrace “Innovation Economics”
2. Get the “Innovation Triangle” Right
3. Find Appropriate Role of Government in Supporting Innovation
4. Reform Global Economic Institutions to Focus on Innovation
5. Reform Global Trade Rules to Enable Innovation

# Embrace Innovation Economics

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Alan Blinder

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



Joseph Schumpeter

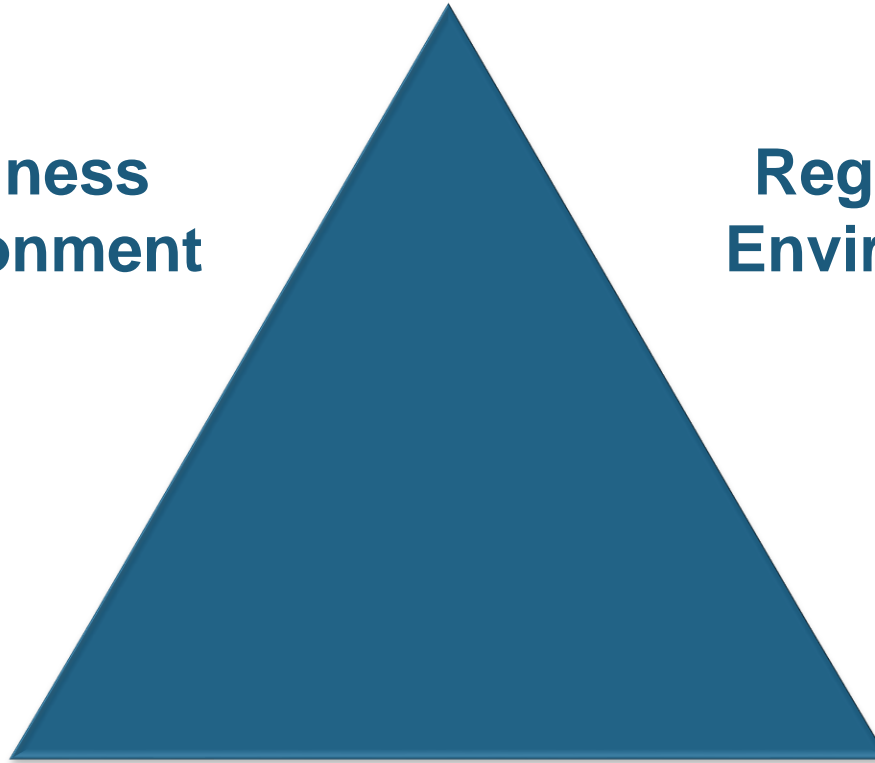
- The central goal of economic policy should be to spur higher productivity and greater innovation.
- Markets relying on price signals alone will not always be as effective as smart public-private partnerships in spurring higher productivity and greater innovation.

# Get the “Innovation Triangle” Right

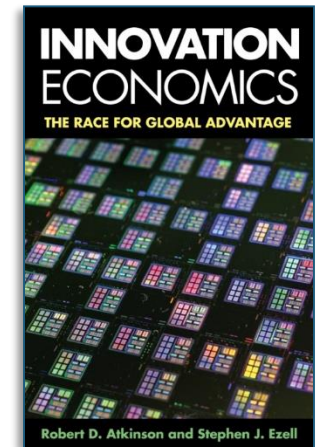
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**Business  
Environment**

**Regulatory  
Environment**

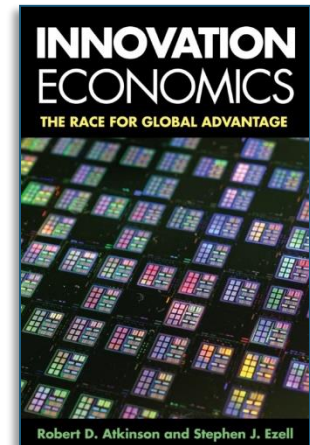
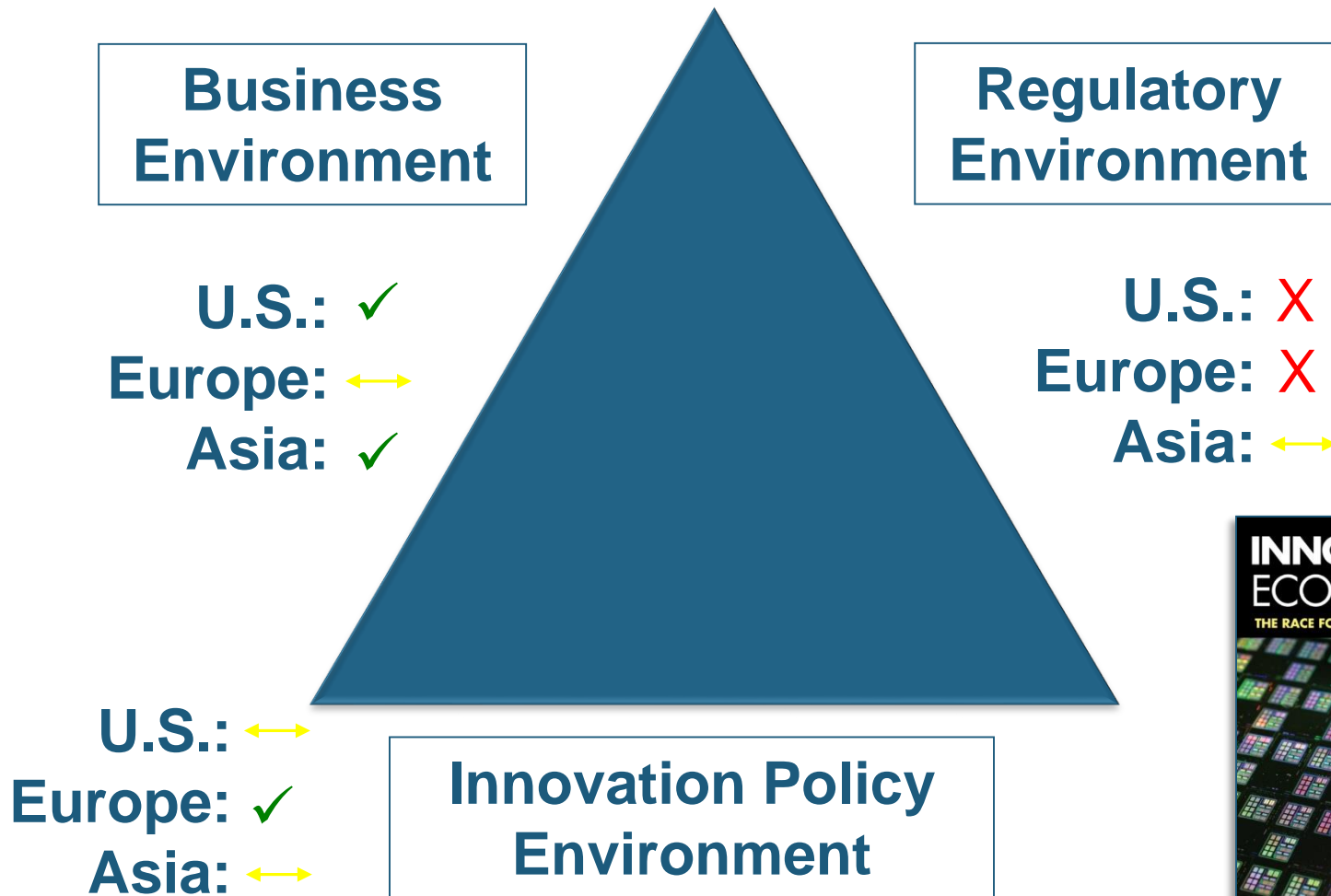


**Innovation Policy  
Environment**



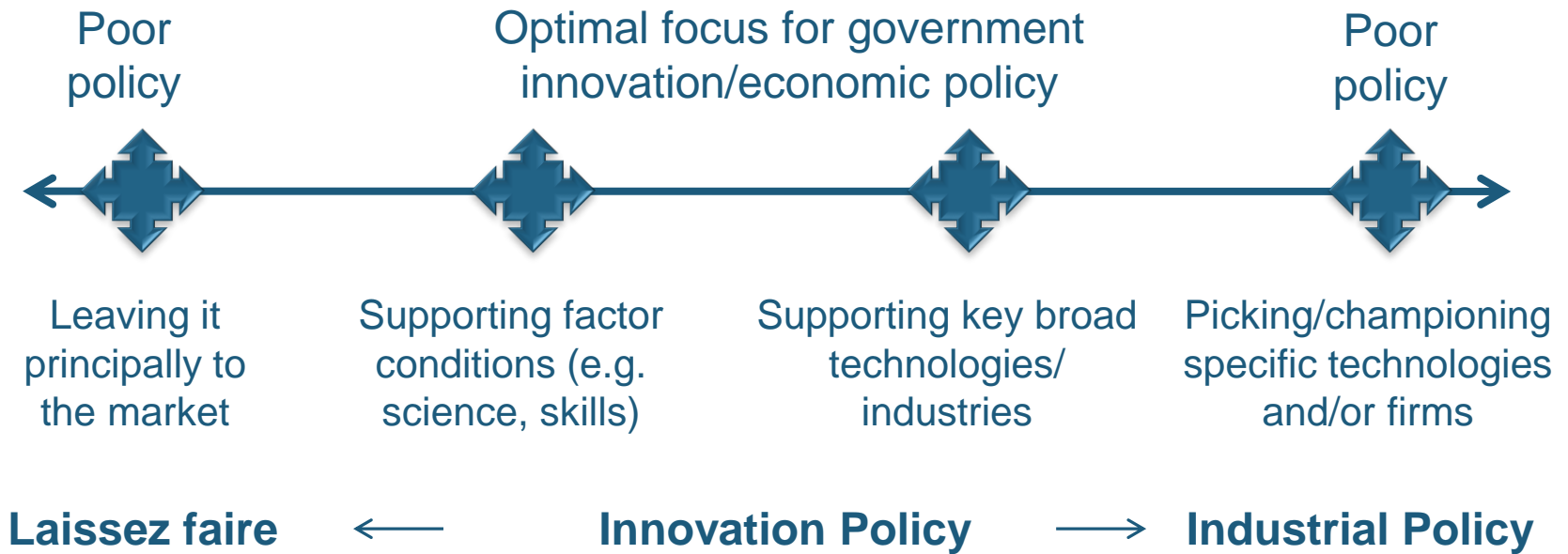


# Get the “Innovation Triangle” Right



# Find Appropriate Role for Government in Supporting Innovation

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# Reform Global Economic Institutions to Better Support on Innovation

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Global policymakers should treat innovation as important as trade in optimizing global economic and consumer welfare.

1. Create a Global Science and Innovation Foundation (GSIF).
2. Allocate a share of countries' R&D investments (e.g., Horizon 2020/NSF) to international partners.
3. Reimagine role of global institutions such as the World Bank, IMF, and WTO.



# Reform Global Trade Rules in Support of Innovation

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1. Launch an Innovation Trade Agreement (ITA)
2. Complete a TiSA that updates GATS for the Internet economy and modern global value chains.
  - The value of international data flows exceeded international merchandise flows for first time in 2015.
  - Vital to realize promise of global value chains and protect underlying international data flows.
3. Complete a high-standard T-TIP Agreement.

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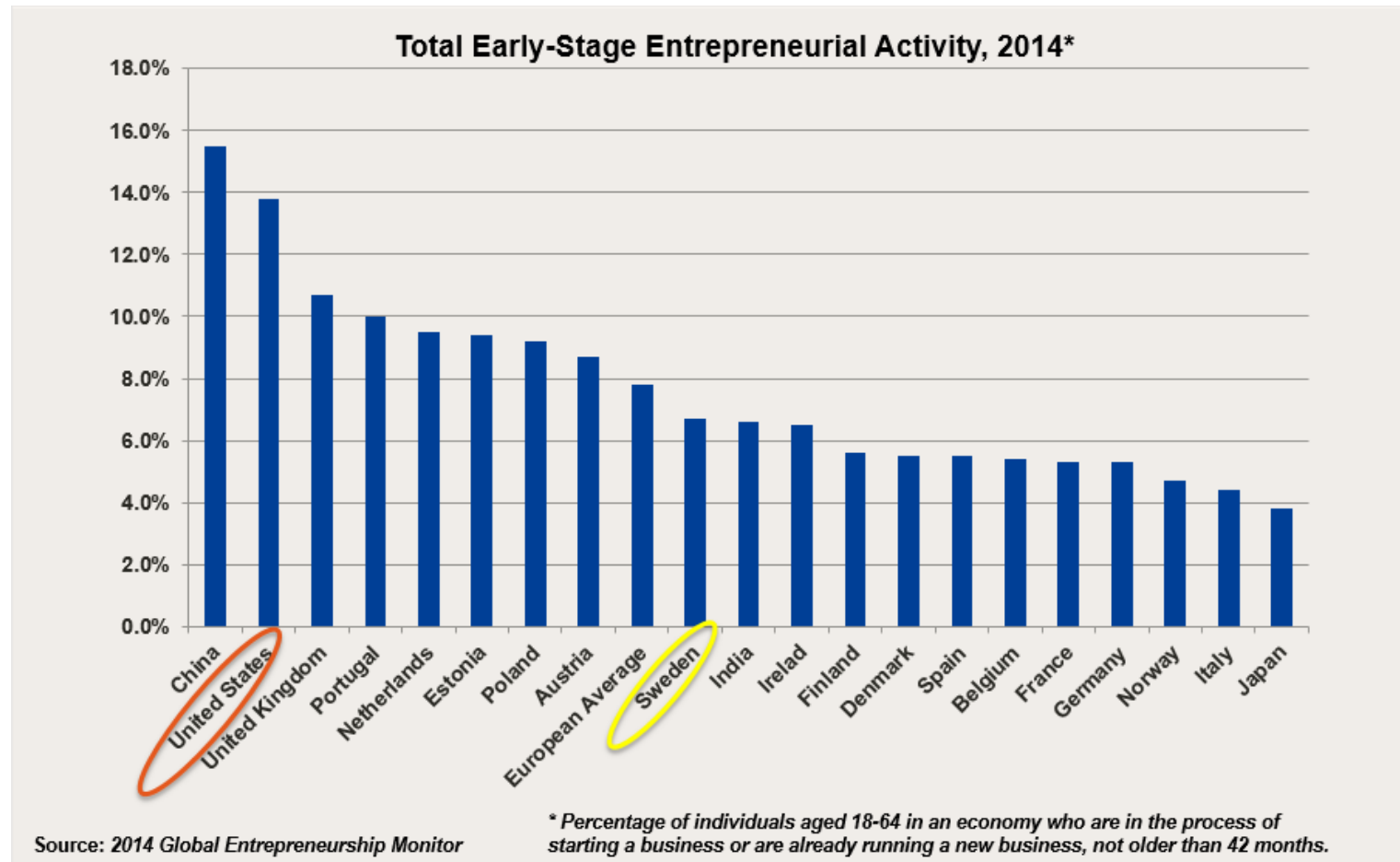
# Bolstering Sweden's Innovation System

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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.”*
  - *Lack of permeability between industry/academia.*
  - *Comparing Swedish and American Universities*

# Bolstering Sweden's Innovation System

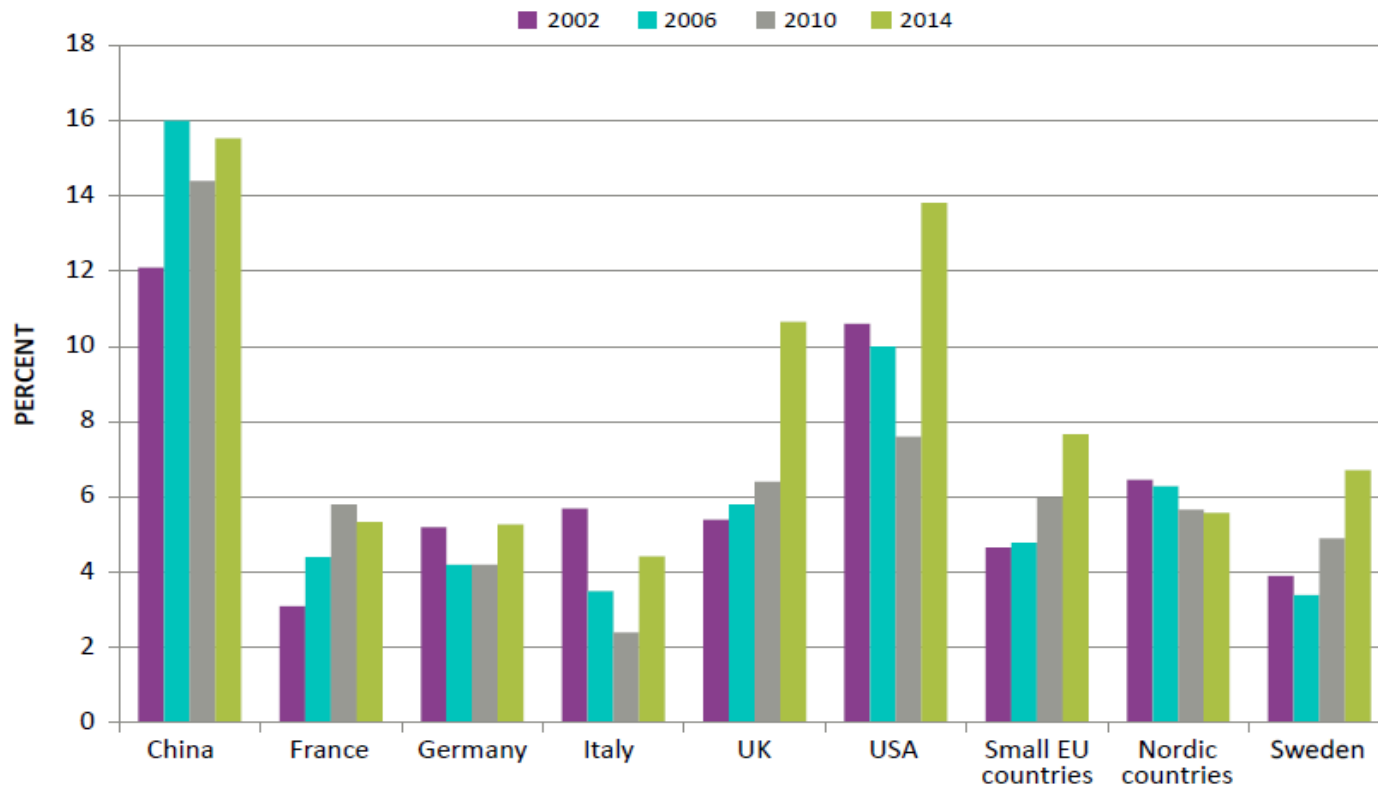
## 2. Bolstering Swedish entrepreneurship rates.



# Bolstering Sweden's Innovation System

## 2. Bolstering Swedish entrepreneurship rates.

Figure 2.1: Total early-stage entrepreneurial activity (TEA)  
Percentage of 18–64 year olds in population who are either nascent entrepreneurs or owner-managers of new businesses



Note: Small EU-countries comprise Belgium, Ireland and the Netherlands; Nordic countries comprise Denmark, Finland and Norway.



# Bolstering Sweden's Innovation System

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3. Could there be a stronger innovation-oriented in immigration policy?
4. Are you getting enough “efficiency” from invested R&D dollars?
5. How effectively will Swedish innovation policy adjust given change in political leadership?

# Thank You!

Stephen Ezell | [sezell@tif.org](mailto:sezell@tif.org) | 202.449.1349