

September 7, 2015

Productivity, Innovation and
Digitalization:
Which Global Policy Challenges?

10th Anniversary Event, Bruegel

Dr. Robert D. Atkinson,
President, ITIF

 [@RobAtkinsonITIF](https://twitter.com/RobAtkinsonITIF)

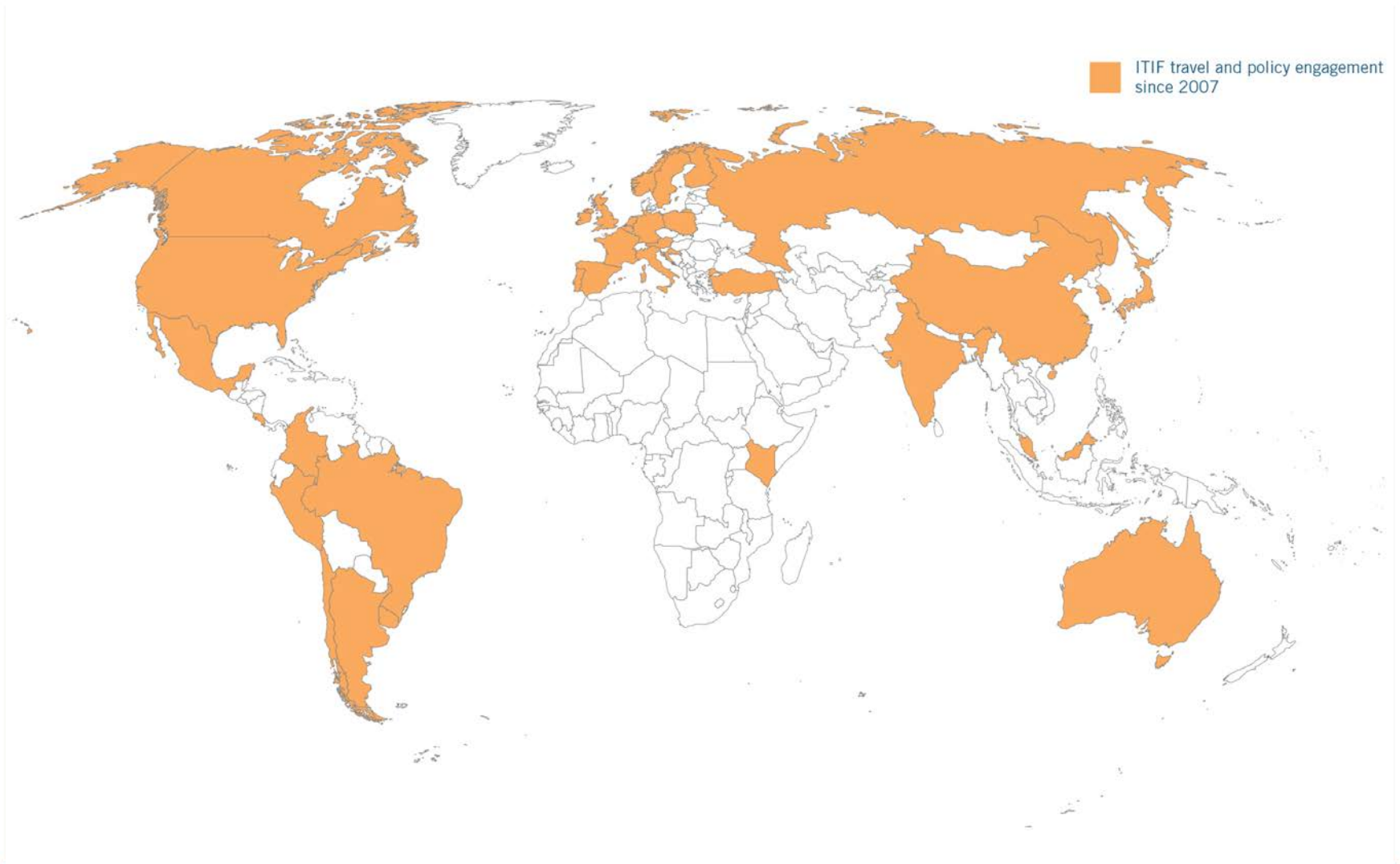


ITIF: Who We Are

The Information Technology and Innovation Foundation is a think tank at the cutting edge of designing innovation policies and exploring how innovation drives boost growth and competitiveness. ITIF focuses on:

- Innovation processes, policy, and metrics,
- Internet, big data and ICT policy,
- ICT and economic productivity,
- Science and tech policy, and
- Innovation and trade policy.

ITIF Global Engagement



Today's Presentation

1

ICT as Driver of Growth

2

Challenges to ICT Development

3

EU ICT Adoption Performance

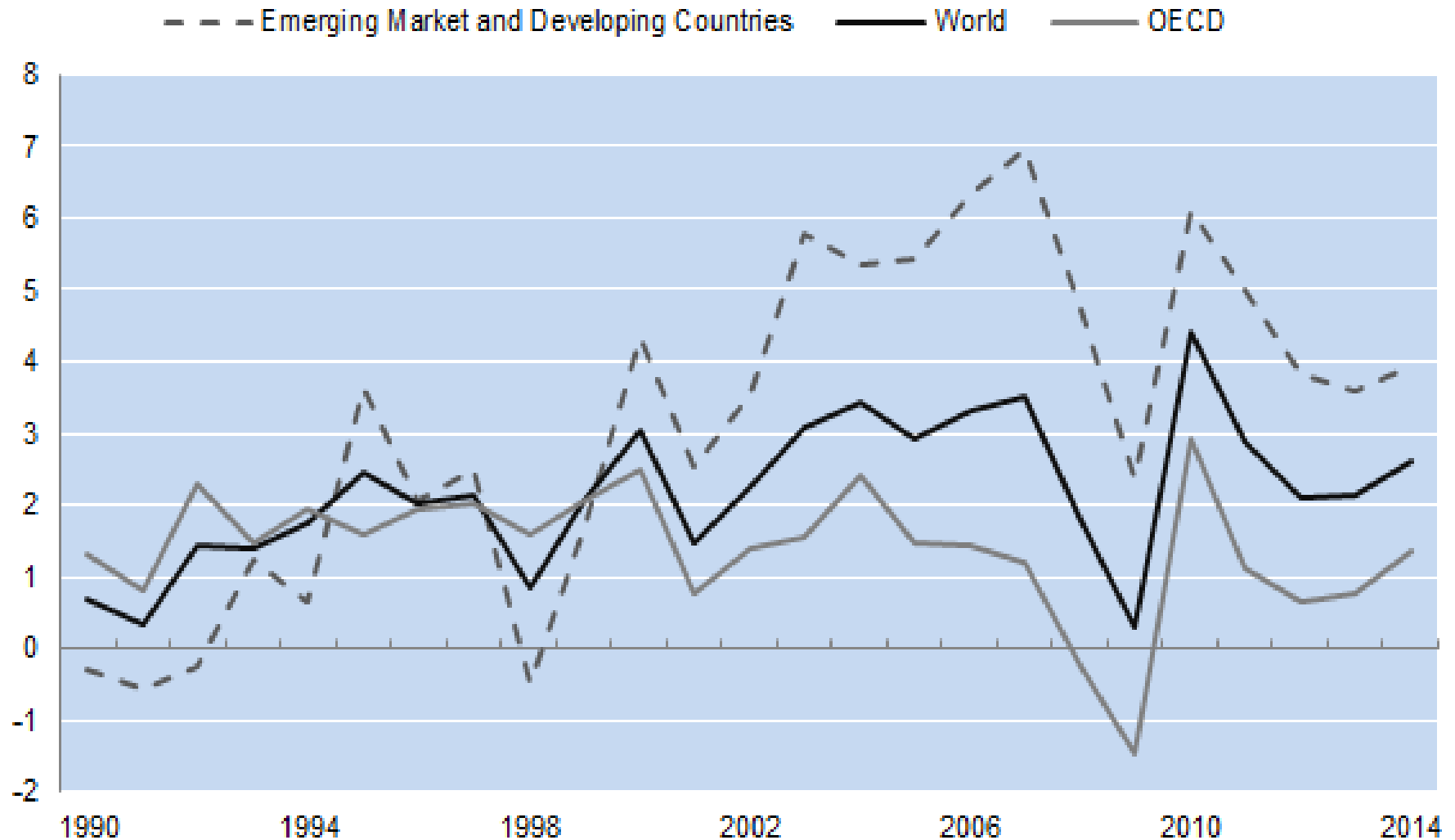
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Challenges to ICT Adoption

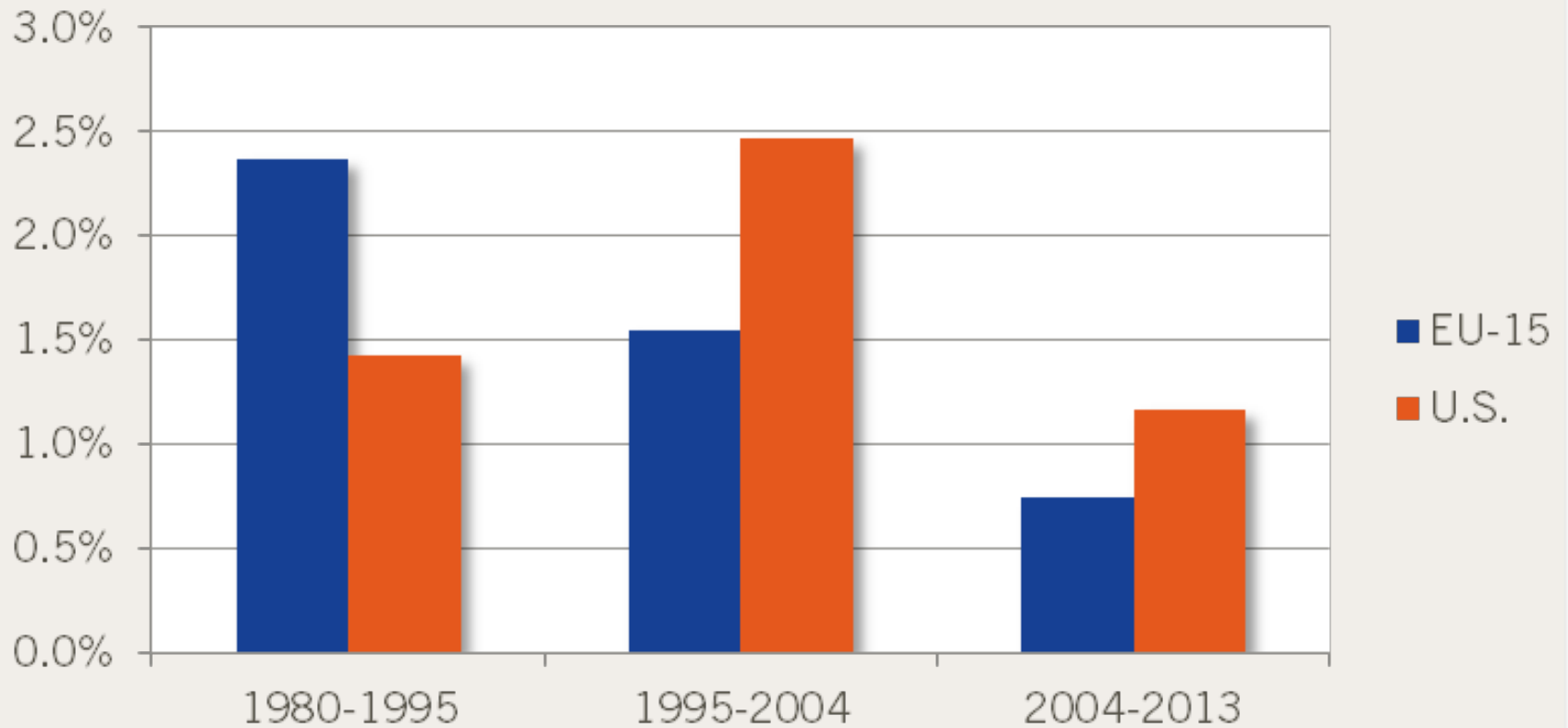
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Policy Solutions

The Global Productivity Challenge

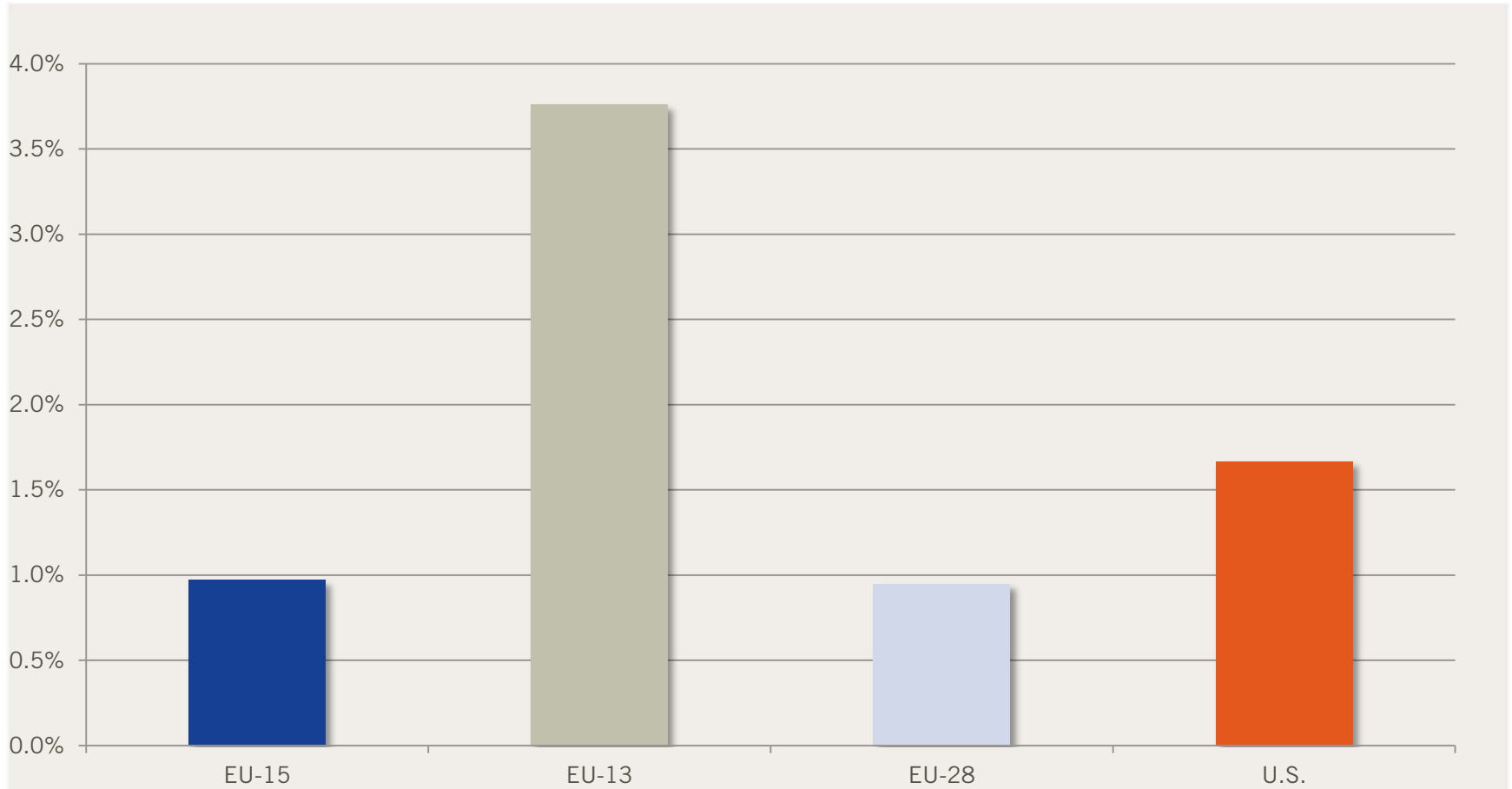


EU's Productivity Challenge is Even More Severe



Annual Labor Productivity Growth; Source: The Conference Board, Total Economy Database

EU's Productivity Challenge is Even More Severe



Annual Labor Productivity Growth, 2000-2013, Source: The Conference Board, Total Economy Database

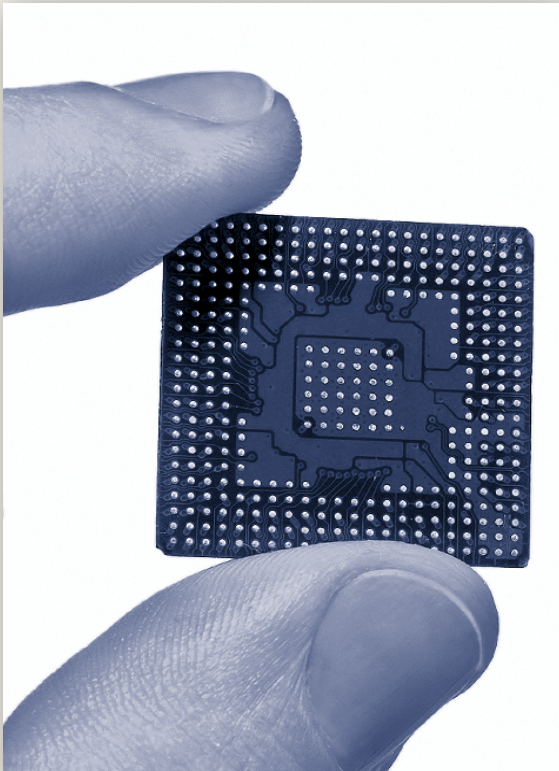
“General Purpose Technologies” Drive Productivity Growth



Approximately every half-century, a new technology *system* emerges that changes everything.

- Railroad and Iron: 1840’s
- Electricity and Steel: 1890’s
- Electro-Mechanical Systems: 1950’s

ICT as Today's GPT



These new technology *systems* impact virtually everything:

- what we produce
- how we produce it
- how we organize production
- the location of productive activity
- the infrastructure needed
- the laws and regulations required

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Moore's Law Drives ICT Tool Progress

- 1,215,500,000,000,000,000,000,000 transistors in 2014



?: Transistor Growth Since 2000

- A. 14.3 times
- B. 143 times
- C. 1,430 times
- D. 14,300 times

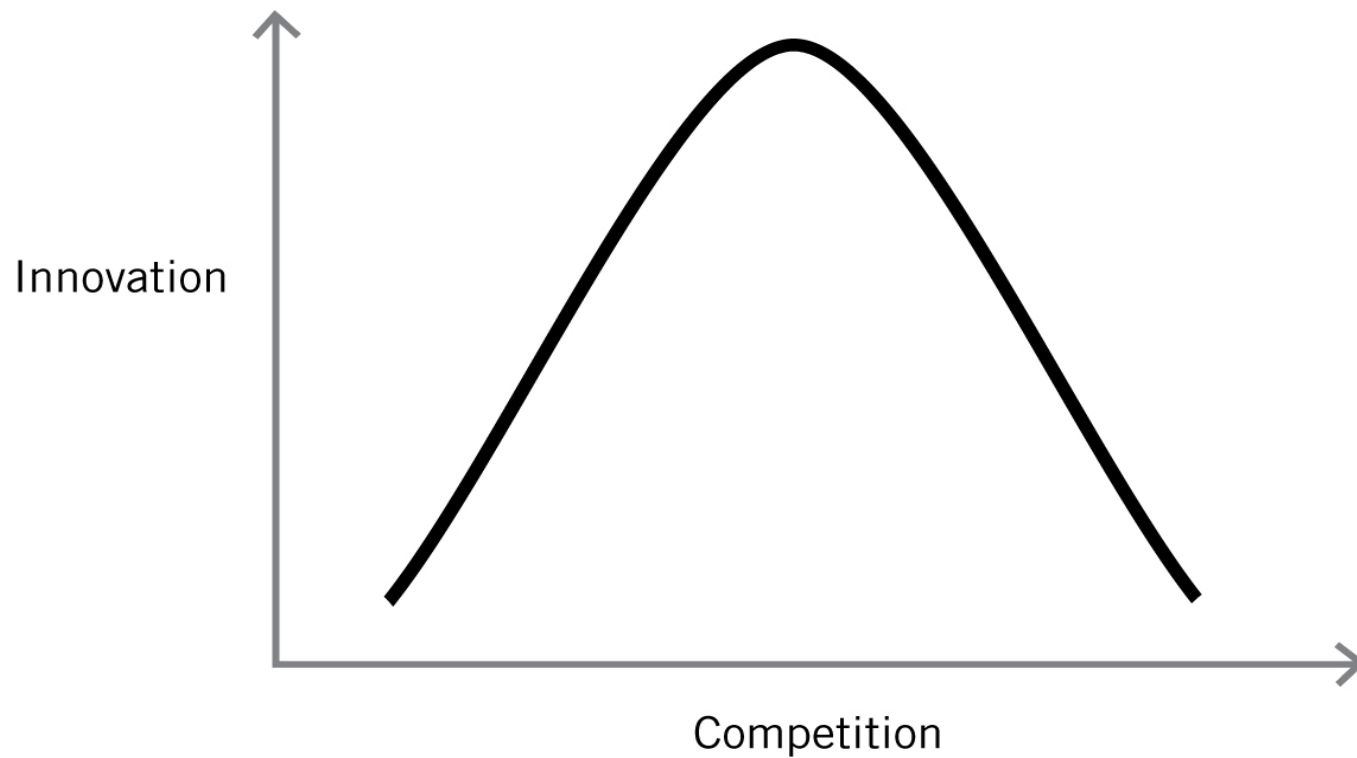


?: Transistor Growth Since 2000

- A. 14.3 times
- B. 143 times
- C. 1,430 times
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“Moore’s Law” Progress Depends on Schumpeterian Profits



Policy Challenges to “Moore’s Law” Progress

- Policy-induced global overcapacity, led by China



Policy Challenges to “Moore’s Law” Progress

- Policy-induced global overcapacity, led by China
- **Fragmented global markets**



Policy Challenges to Moore's Law Progress

- Policy-induced global overcapacity, led by China
- Fragmented global markets
- **Weak IP protection**



Policy Challenges to Moore's Law Progress

- Policy-induced global overcapacity, led by China
- Fragmented global markets
- Weak IP protection
- **Overly aggressive anti-trust policy**



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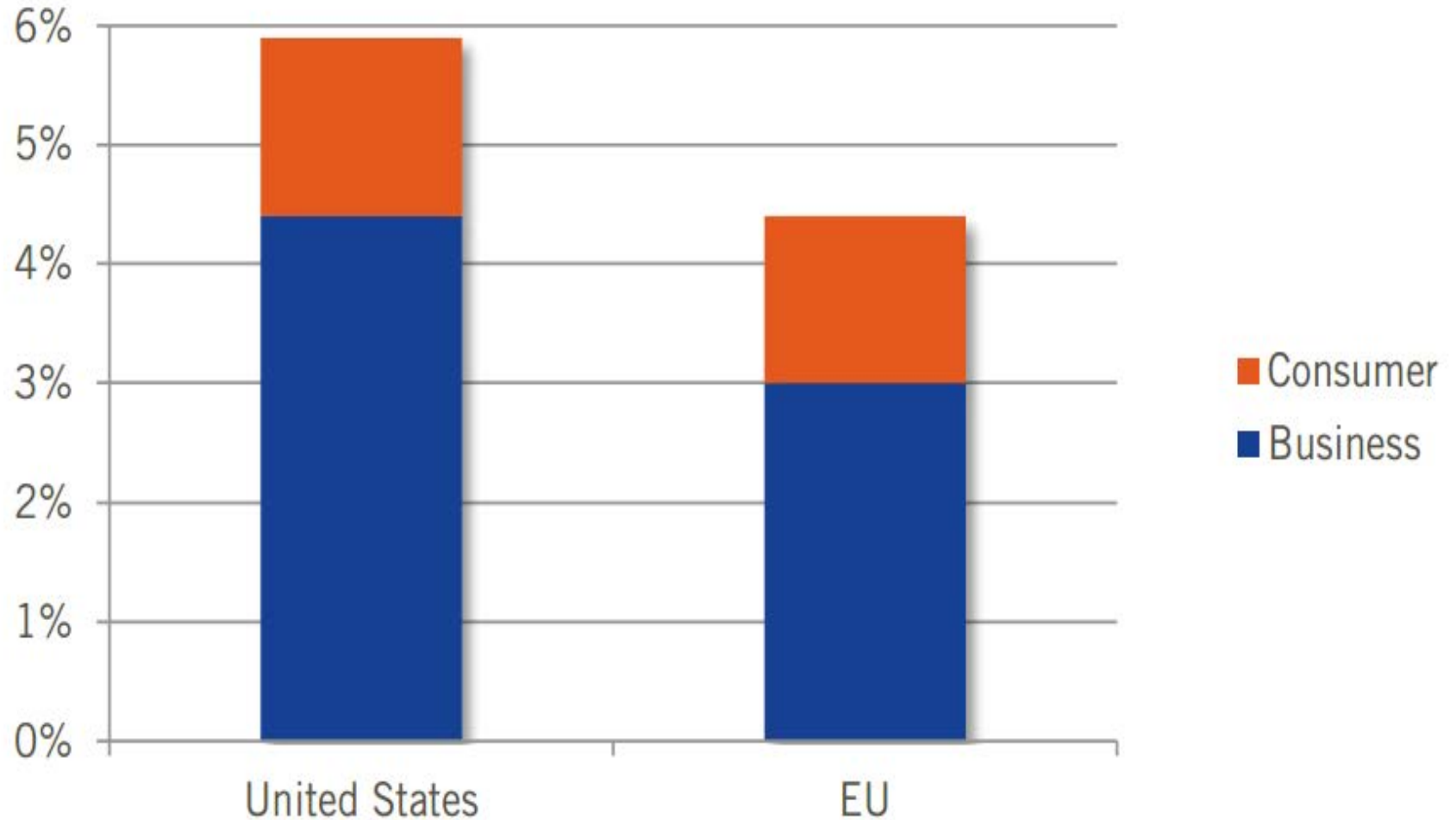
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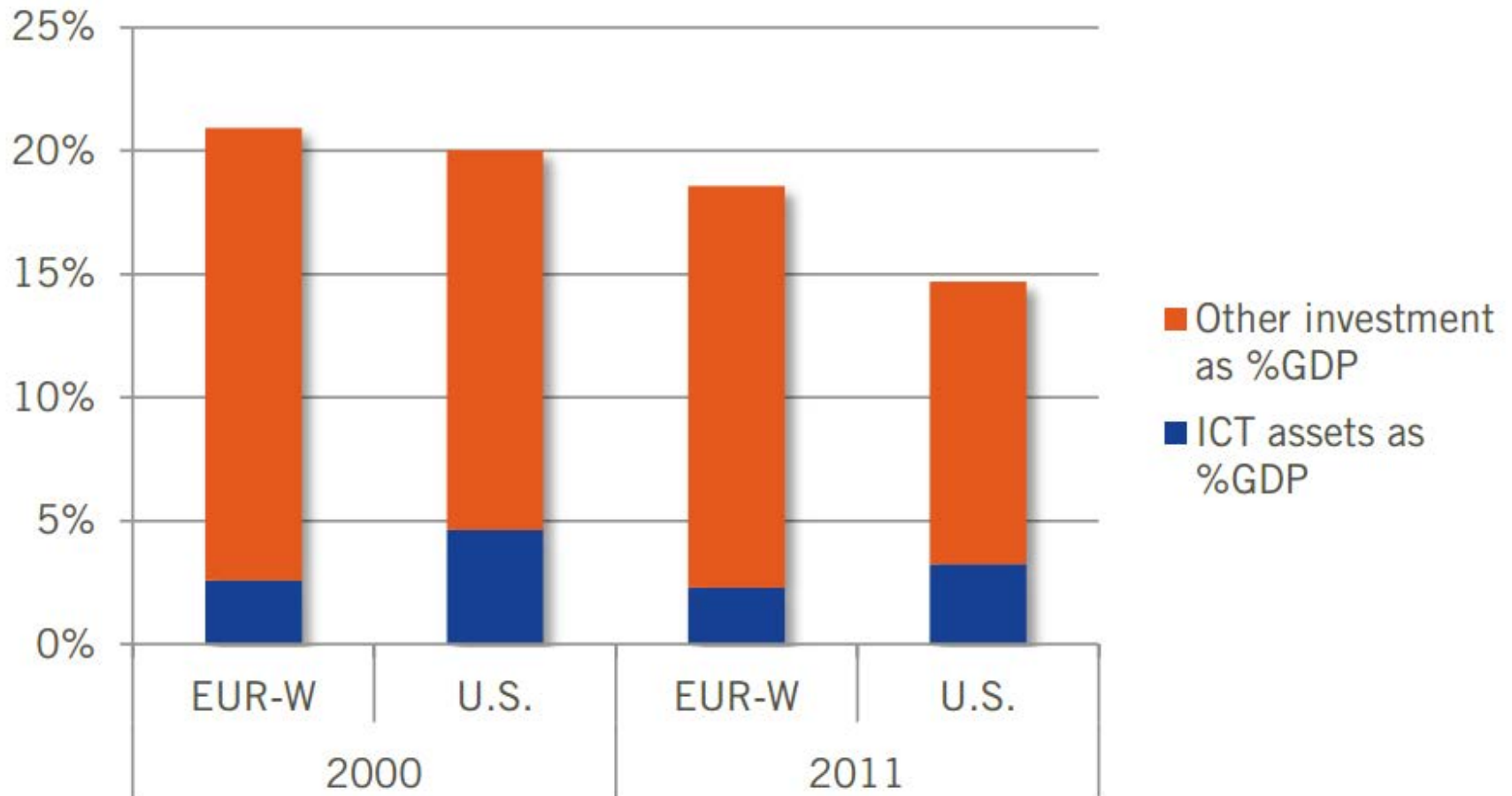
Policy Solutions

U.S. Businesses Invest More in ICT



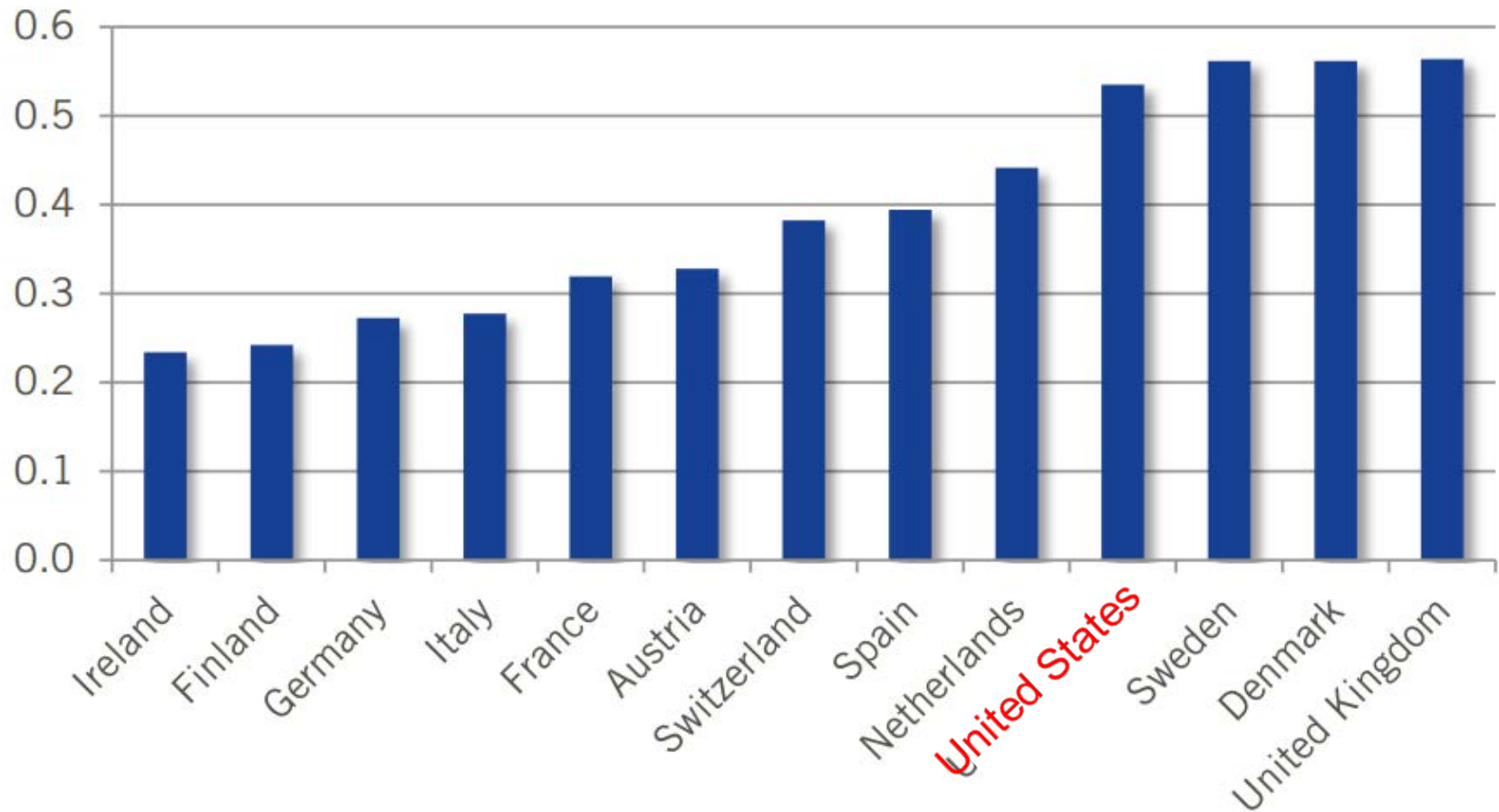
Share of GDP, 2010; Source: National Science Foundation, *Science and Engineering Indicators 2014*

U.S. Exceeds EU in ICT Investment (1)



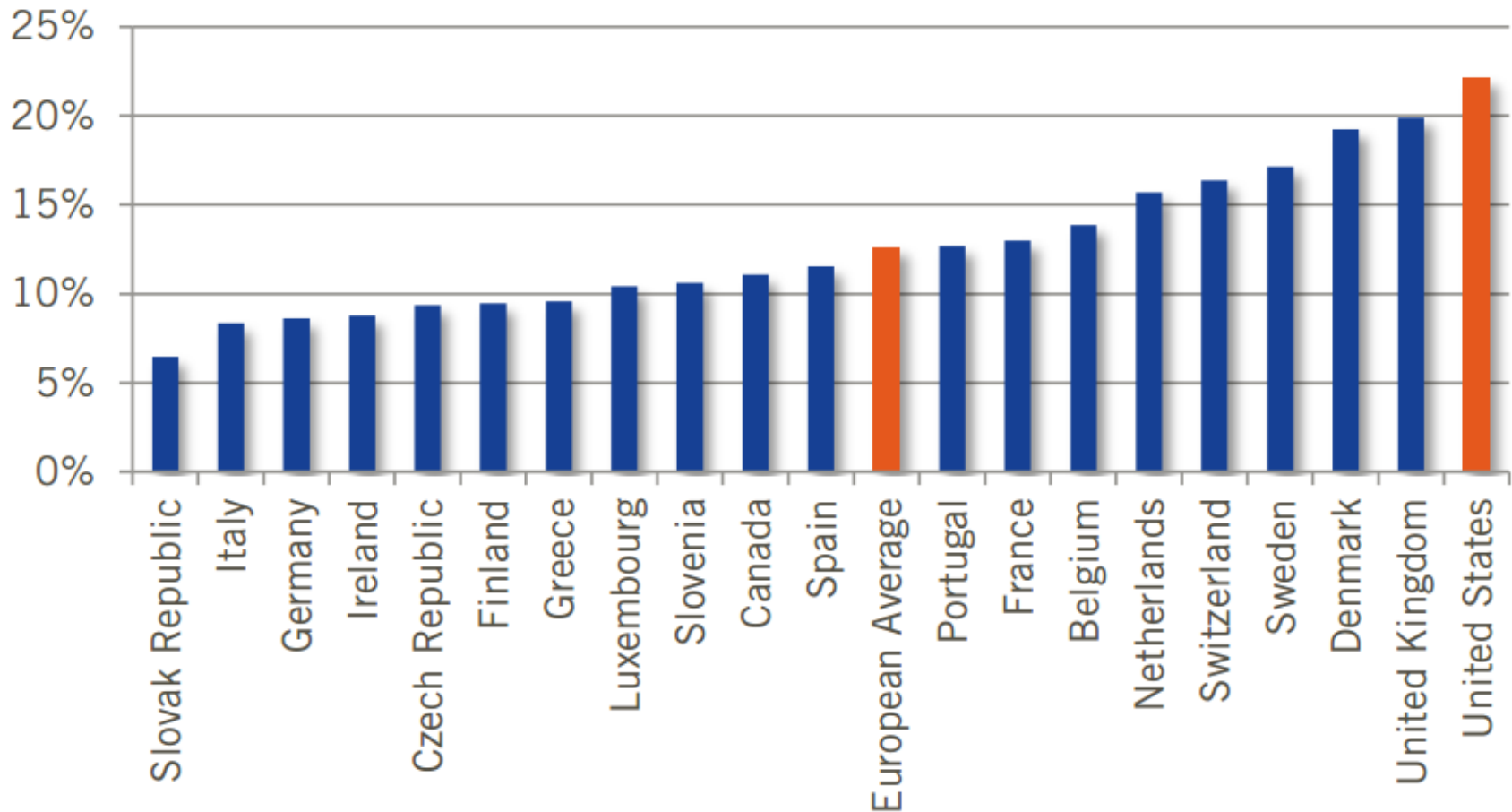
Gross fixed capital formation as a percentage of GDP (EUR-W is weighted average of major European countries Source: "ICT Capital and Productivity Growth," EIB Papers 16, no. 2 (2011))

U.S. Gets More Growth From ICT



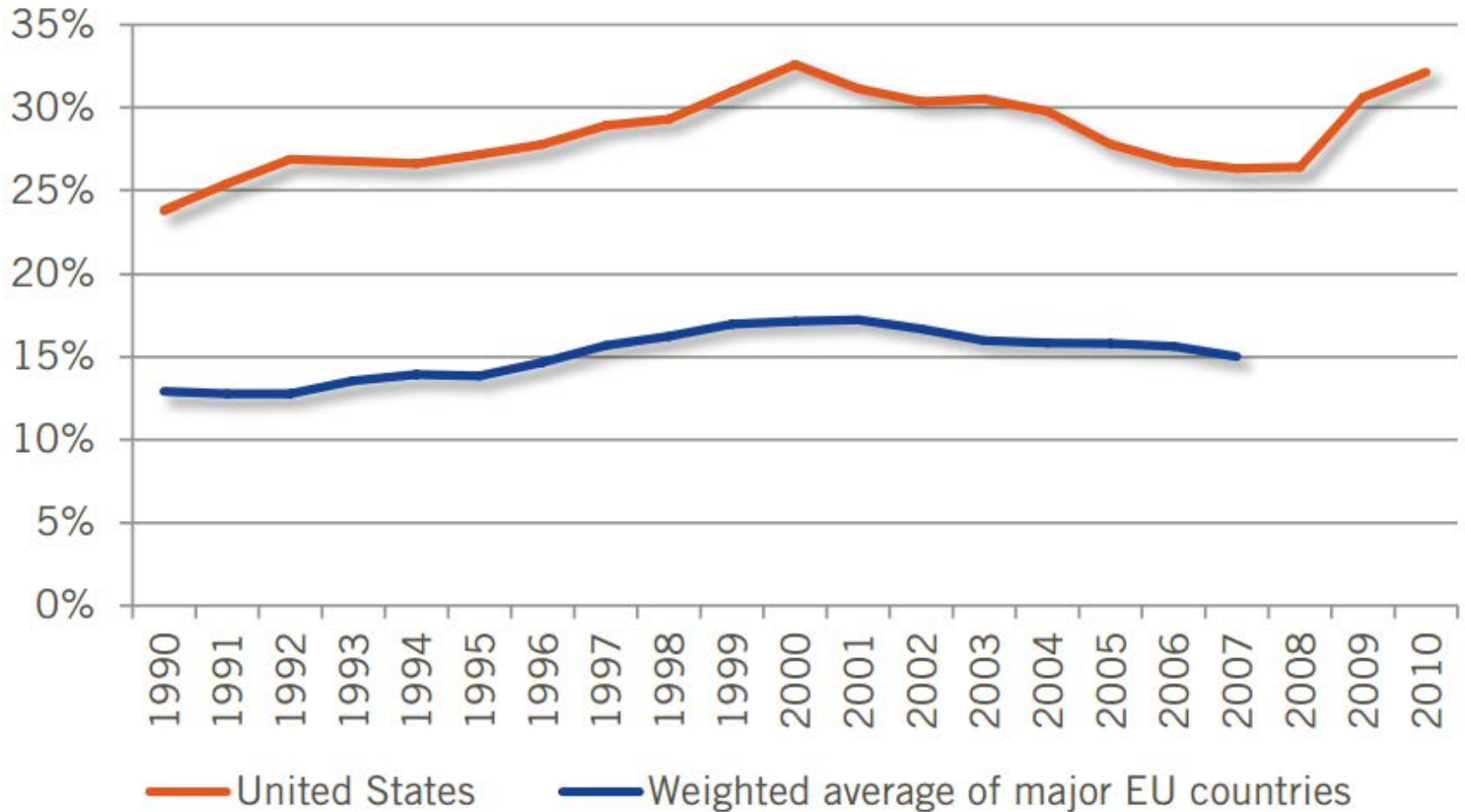
ICT contribution to annual GDP growth, 1985-2010; Source: *OECD StatExtracts, Country Statistical Profile 2012*

US. Exceeds EU in ICT Investment (2)



ICT assets as percentage gross fixed capital formation, 2011. OECD, *Science Technology and Industry Scoreboard 2013*

A Bigger Share of U.S. Investment Goes to ICT



Shares of ICT investment as percent of nonresidential investment. Source: *OECD StatExtracts, Country Statistical Profiles 2012*

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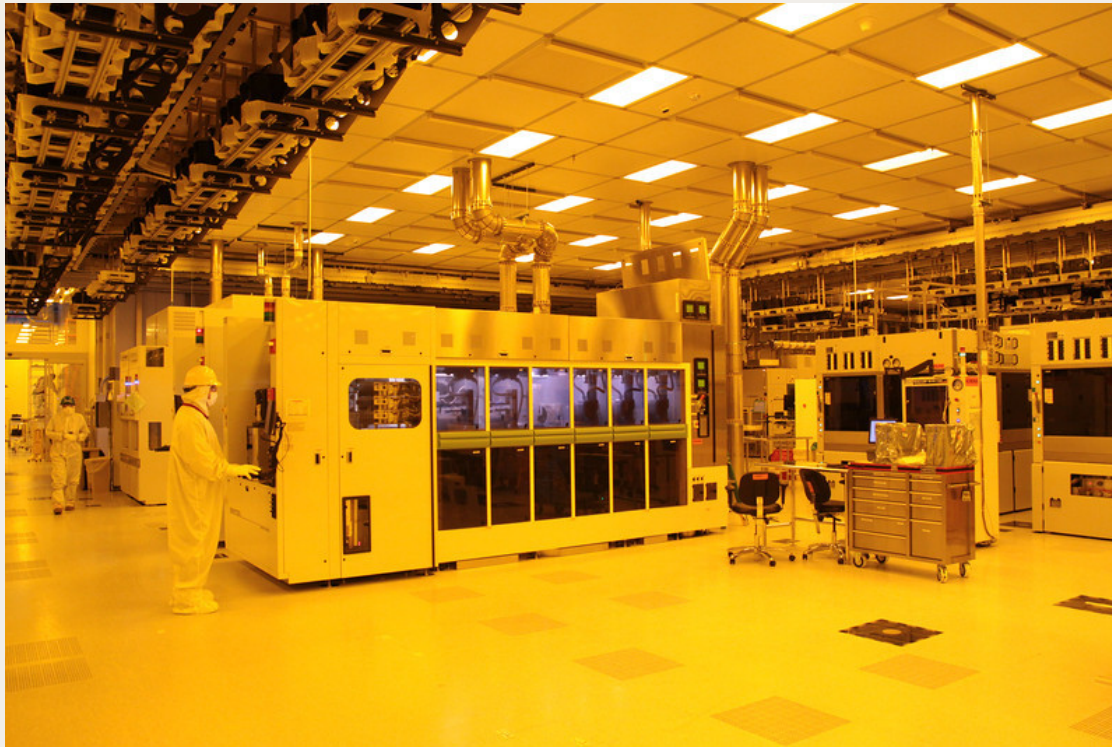
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Policy Solutions

Policy Challenges to ICT Adoption

- Favoring development over adoption

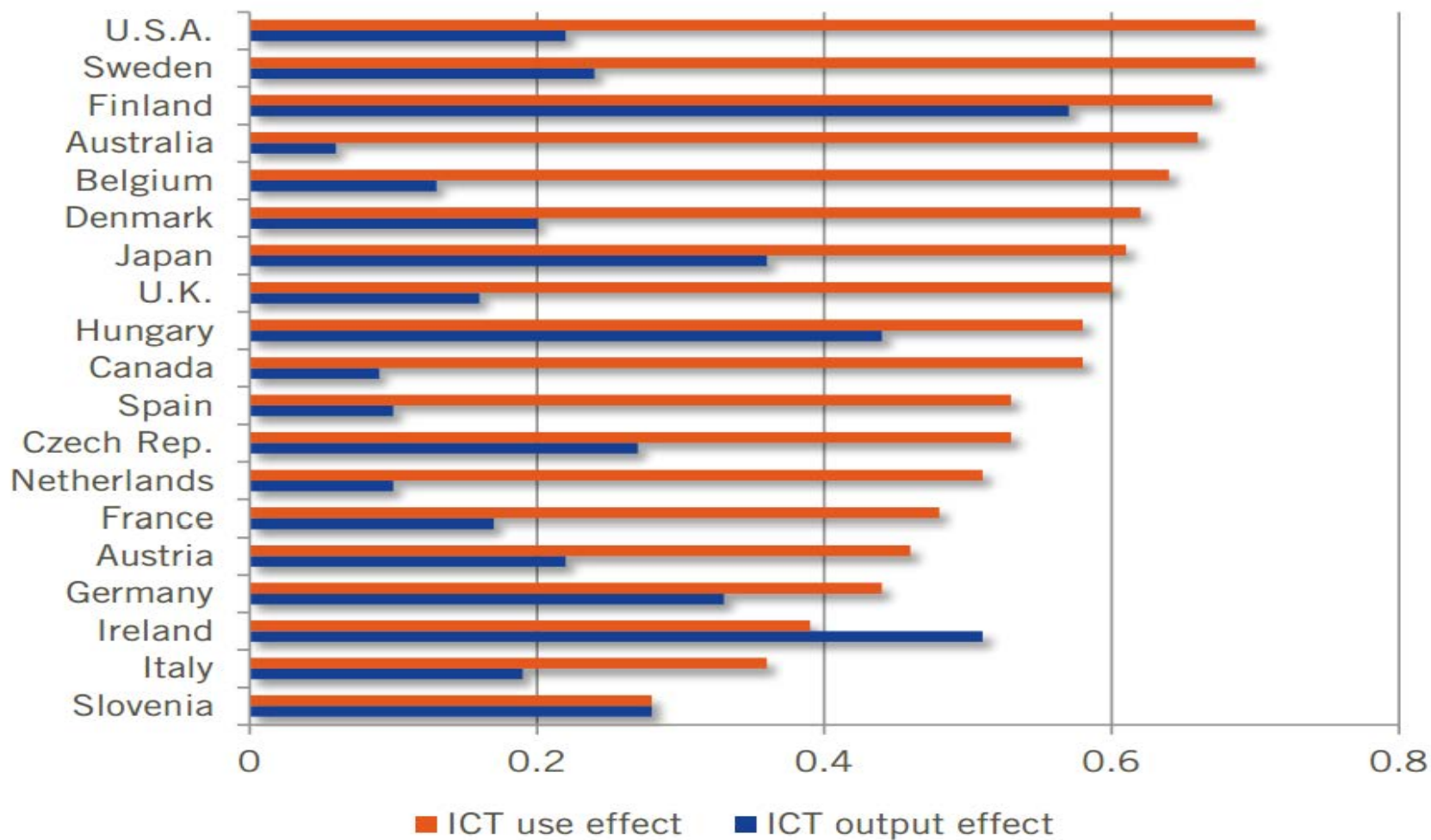


Is it Better to Cook the Tech, or Eat it?

- Over 80% of benefits from ICT in the U.S. are related to its use by organizations, rather than its production by the ICT industry.



Most U.S. Advantage Comes From ICT Use



2000 to latest year, percentage points per annum. Source: *Economic Modelling* 29, no. 5 (2012)

But “Cooking” Policies Can Hurt “Eating”

- ICT Tariffs
- Data center and data localization requirements
- Local content requirements
- Procurement preferences for domestic companies

Policy Challenges to ICT Adoption

- Favoring development over adoption
- **Resistance to ICT-enabled creative destruction**



Policy Challenges to ICT Adoption

- Ignoring adoption in favor of development
- Resistance to ICT-enabled creative destruction
- **Social policy driving ICT policy**



ICT as Social Policy

- **Privacy**

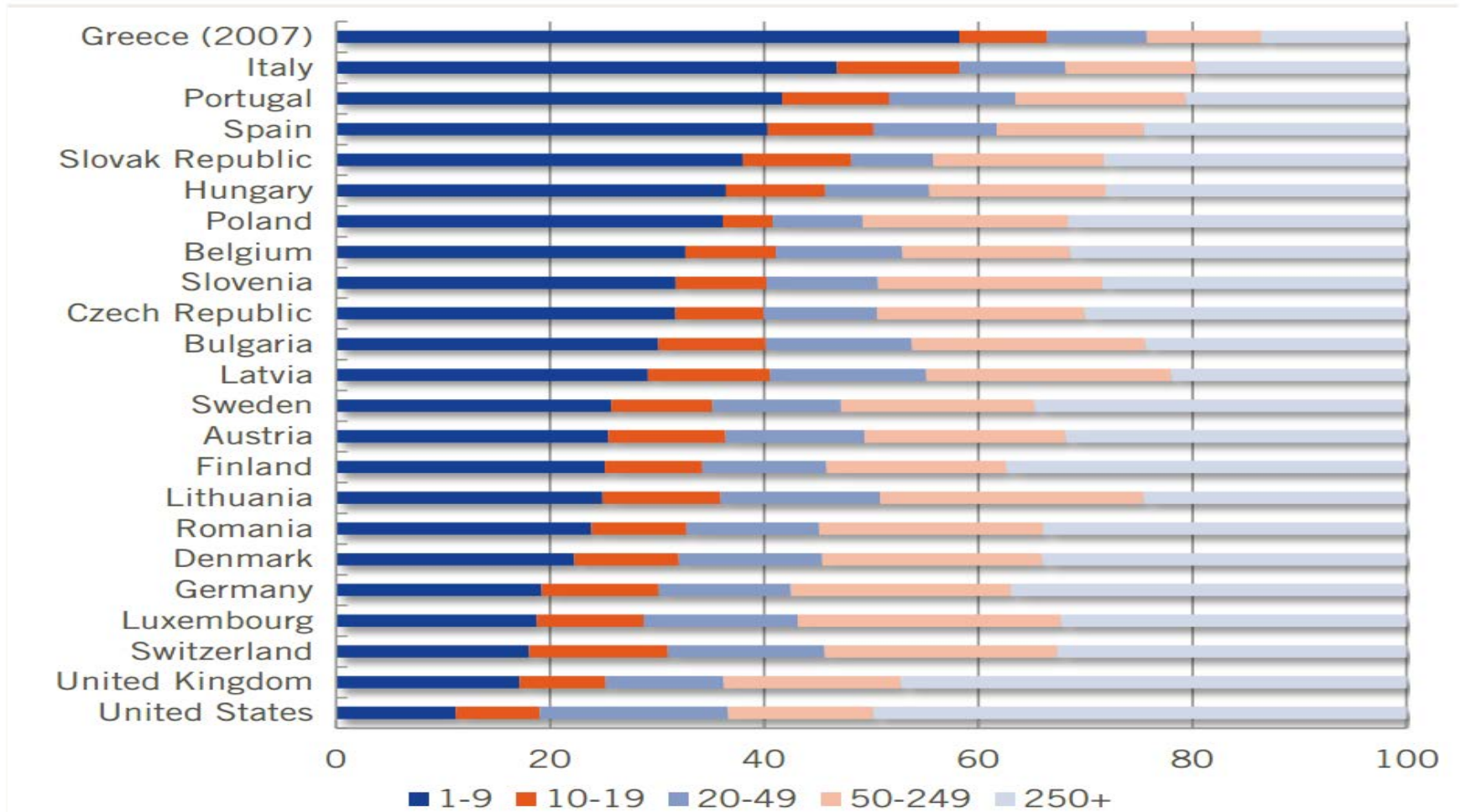


ICT as Social Policy

- Privacy
- Favor small businesses



EU Firms Are Smaller Than U.S. Firms (and Less Productive)

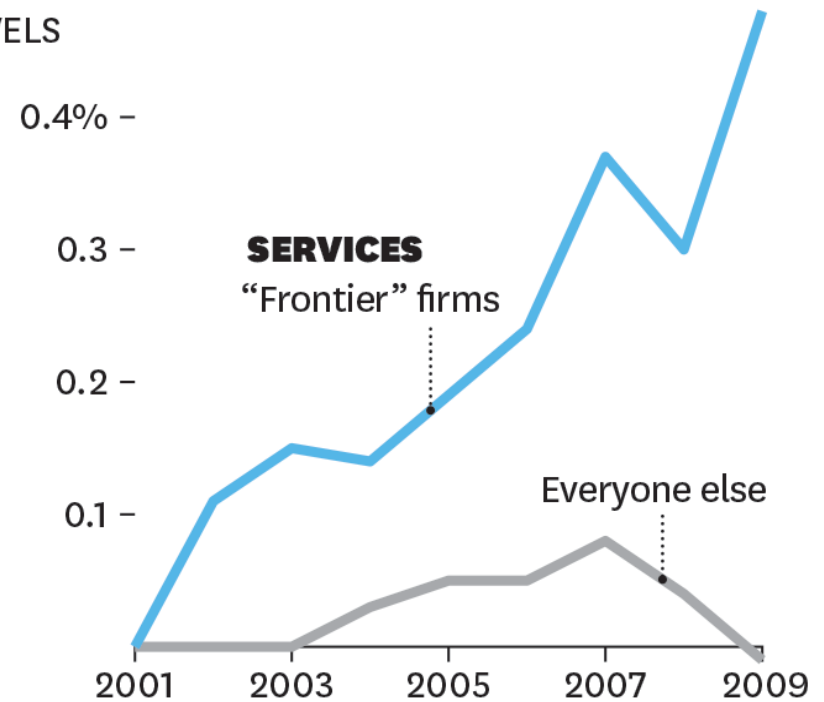
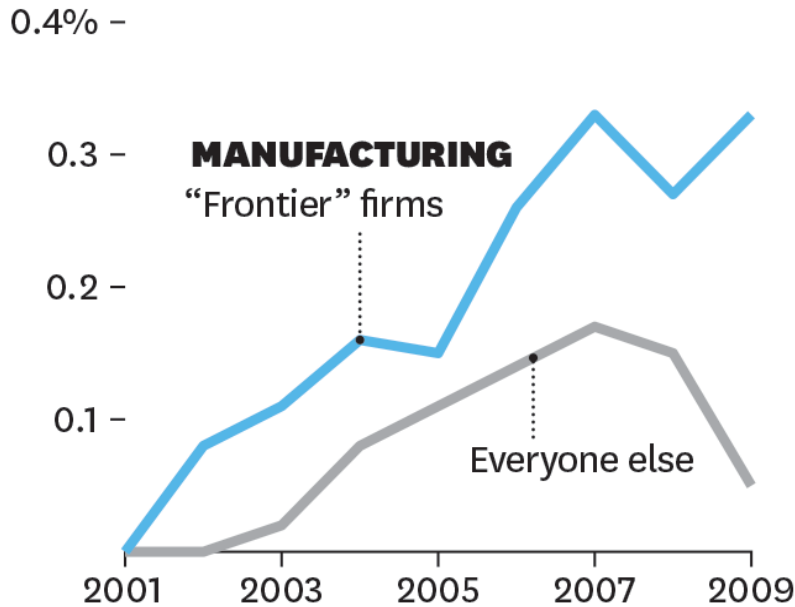


Percent of total workforce employed at enterprises by size, 2010. Source: OECD, Entrepreneurship at a Glance 2013

The Gap Between the Most Productive Firms and the Rest is Growing

A look at labor productivity in manufacturing and services.

PERCENTAGE DIFFERENCE IN LABOR PRODUCTIVITY LEVELS FROM THEIR 2001 VALUES (INDEX, 2001=0)



SOURCE "THE FUTURE OF PRODUCTIVITY," OECD, 2015

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ICT as Social Policy

- Privacy
- Favor small businesses
- **Restrictive labor market regulations**



Policy Challenges to ICT Adoption

- Privacy
- Favor small businesses
- Restrictive labor market regulations
- **Chicken or egg issues: (mobile payments, ITS, health IT, digital signatures, smart cities)**



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Policy Principles to Drive ICT-Enabled Growth

- Avoid prisoner's dilemma policies (e.g., advance your growth at global expense)
- Put the pedal to metal for growth and disruption

Selected ITIF Resources

- Raising European Productivity Growth Through ICT:

<http://www2.itif.org/2014-raising-eu-productivity-growth-ict.pdf>

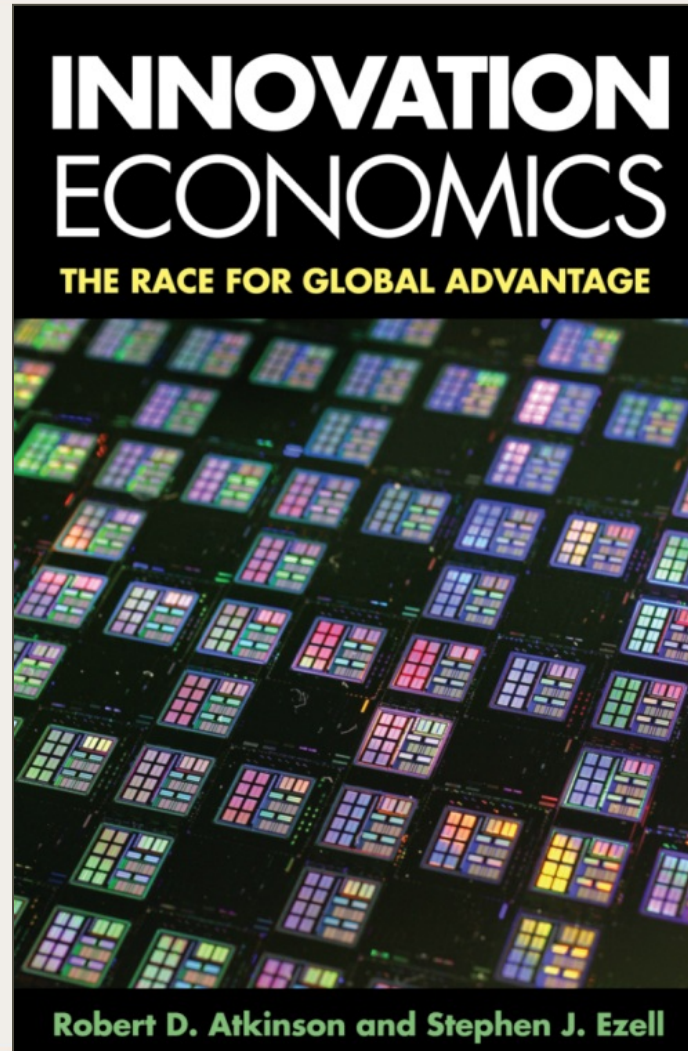
- The False Promise of Data Nationalism:

<http://www2.itif.org/2013-false-promise-data-nationalism.pdf>

- Resolving Cross-Border Internet Policy Conflicts:

<http://www.itif.org/events/resolving-cross-border-internet-policy-conflicts>

www.globalinnovationrace.com



Thank You

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