

November 13, 2014

The Role of ICT In Driving EU Productivity Growth

**Presentation at Building Blocks
of the Ubiquitous EU Digital
Single Market Workshop**

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President, ITIF**



 **@RobAtkinsonITIF**

The Information Technology & Innovation Foundation is a Washington, D.C.-based think tank at the cutting edge of designing innovation policies and exploring how technological innovation will boost economic growth and improve quality of life. ITIF focuses on:

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

■ Today's Presentation

1

Productivity and Technology

2

The *Nature* of the EU-US Productivity Gap

3

Causes of the EU-US Productivity Gap

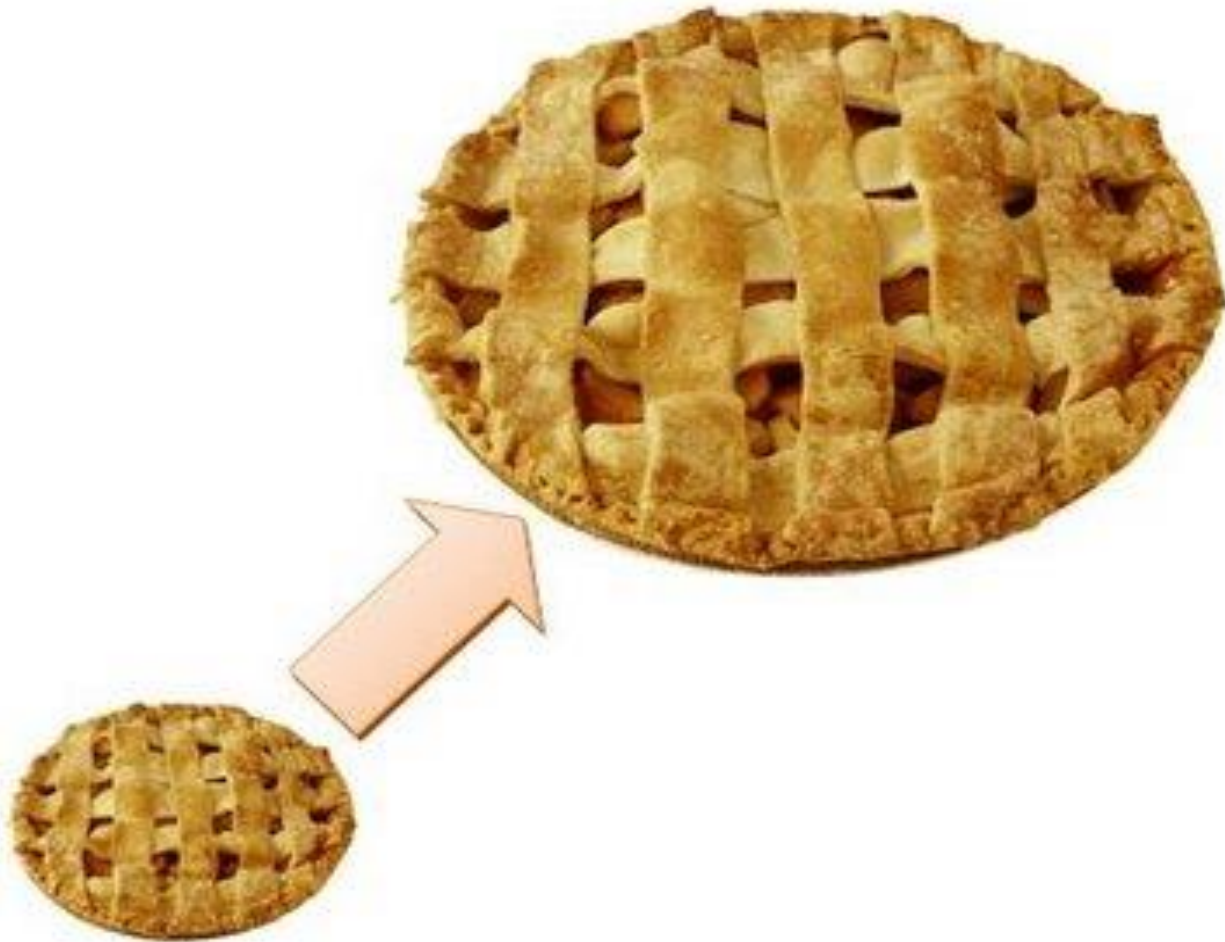
4

Some *Solutions* For Closing the Gap

5

Some *Steps* to a Digital Single Market

- **Productivity Grows the “Pie”**



■ Productivity Comes From Better Use of Tools



■ Today's Better Tools Are Largely ICT Tools



■ New ICT Tools Have Come Online

- Social
- Mobile
- Internet of Things
- Aalytics
- Cloud
- Hardware (e.g., tablets, kiosks, 3D printers, robots)

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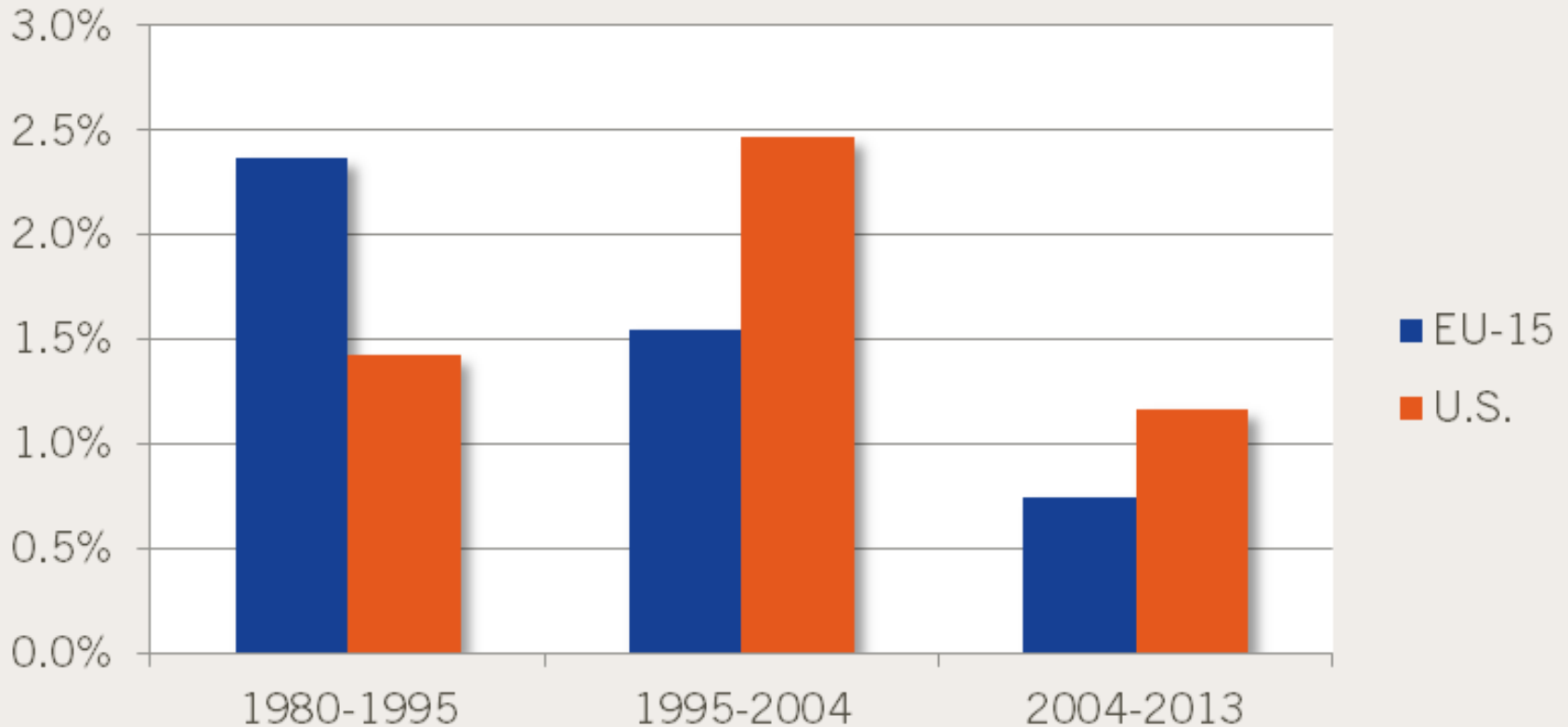
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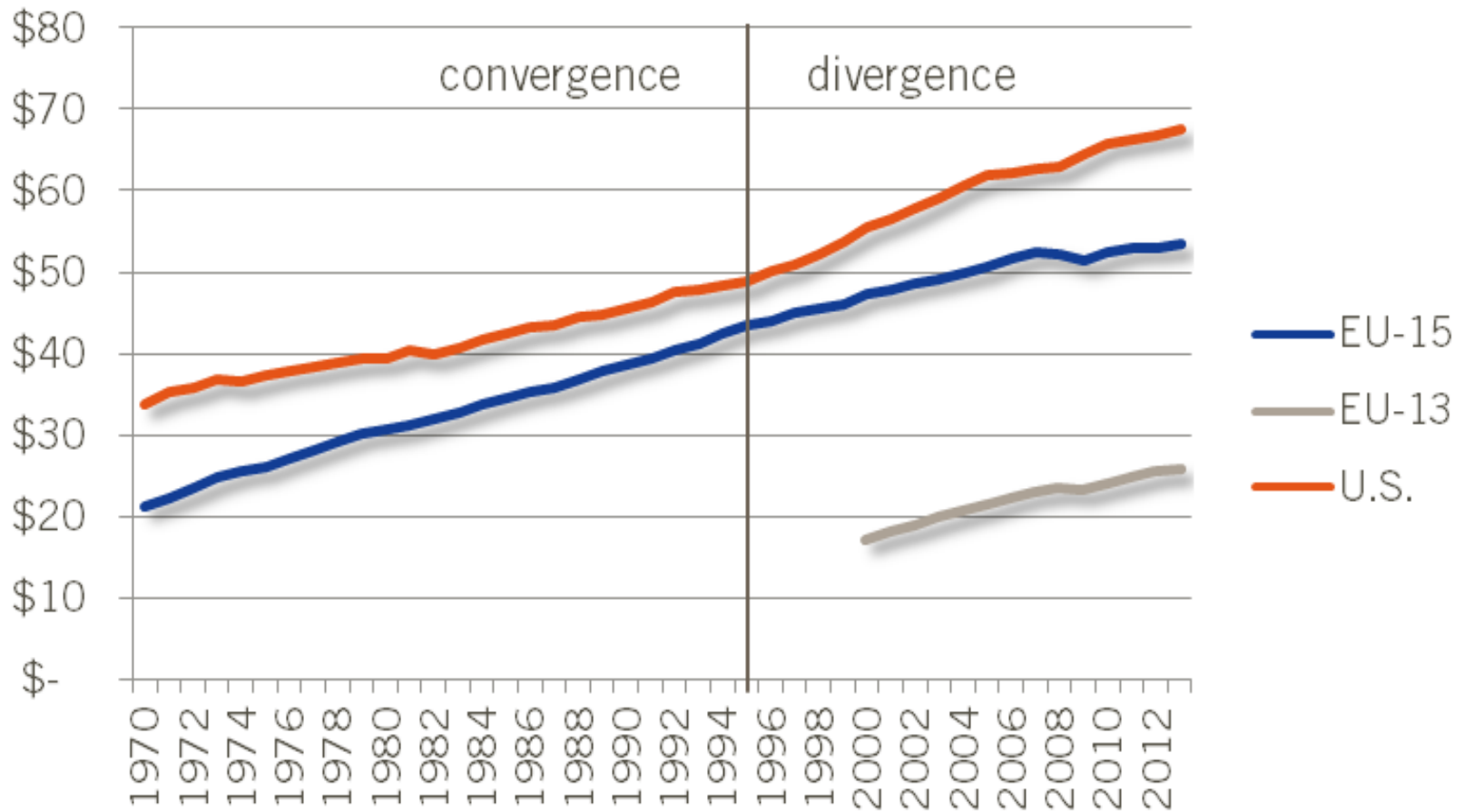
■ Since 1995 EU-15 Falling Behind U.S. in Labor Productivity



Annual Labor Productivity Growth

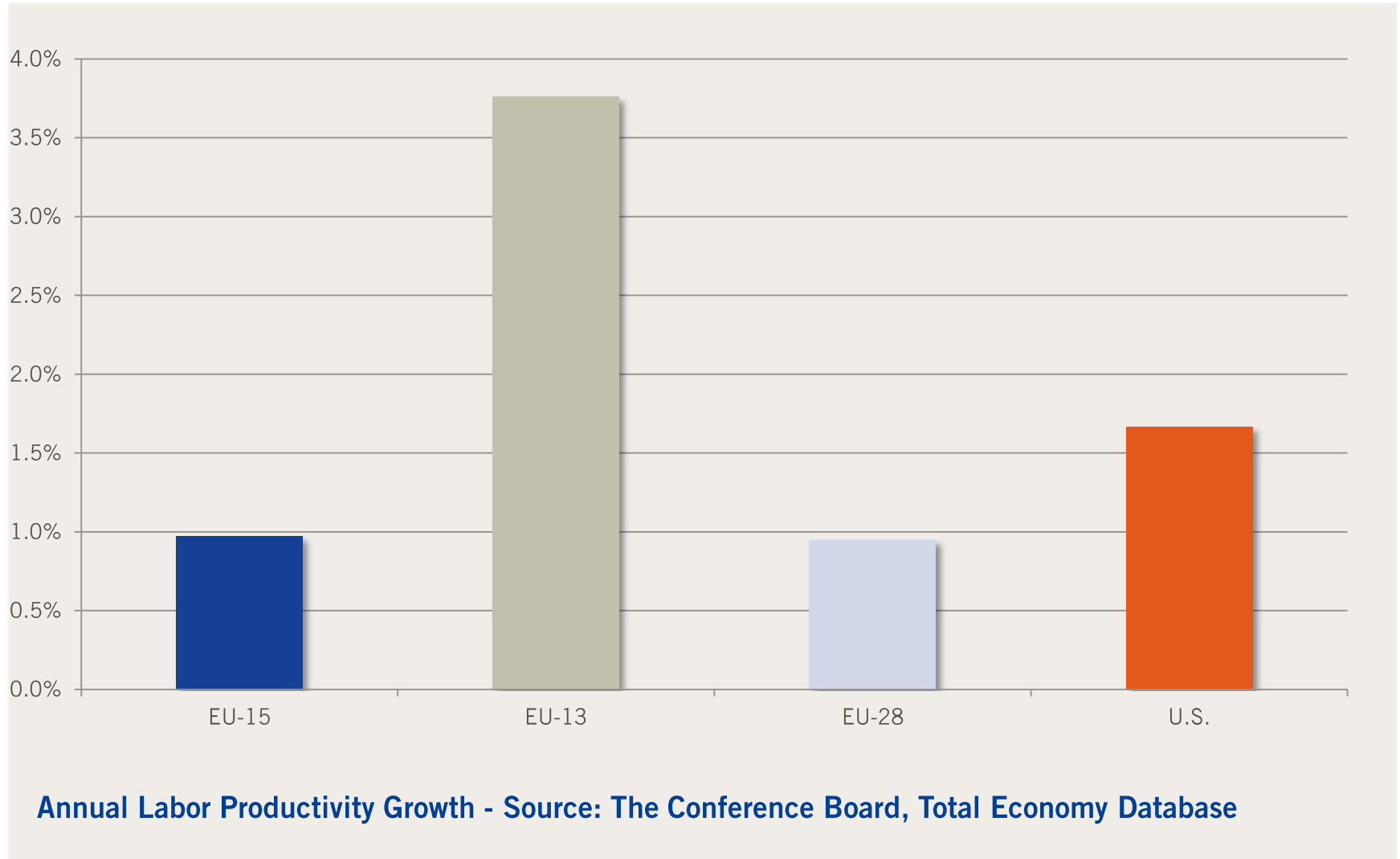
Source: The Conference Board, Total Economy Database

■ Then Convergence; Now Divergence



GDP per hour worked - Source: The Conference Board, Total Economy Database

■ U.S. Productivity Growth Leads EU-28: 2000-2013



Different Patterns of Convergence/Divergence (EU-15)

■ (EU-15)

		2004-2013	
		Diverging	Converging
1995-2004	Converging	Finland Greece Sweden United Kingdom	Ireland
	Diverging	Belgium Denmark France Germany Italy Luxembourg Netherlands Portugal	Austria Spain

Different Patterns of Convergence/Divergence (EU-13)

		2004-2013	
		Diverging	Converging
1995-2004	Converging		Bulgaria Czech-Republic Hungary Lithuania Poland Romania Slovak-Republic
	Diverging	Cyprus Malta	

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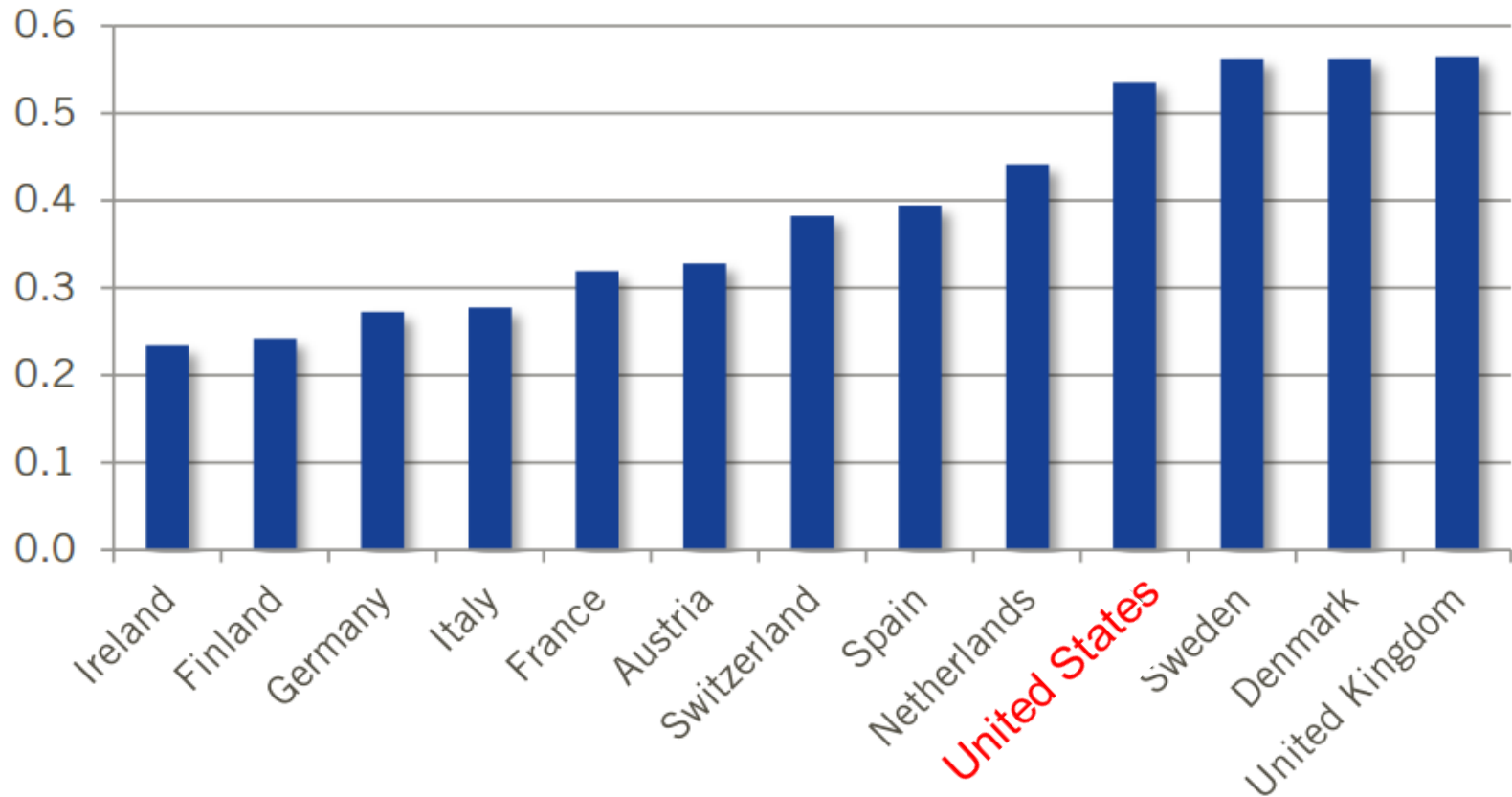
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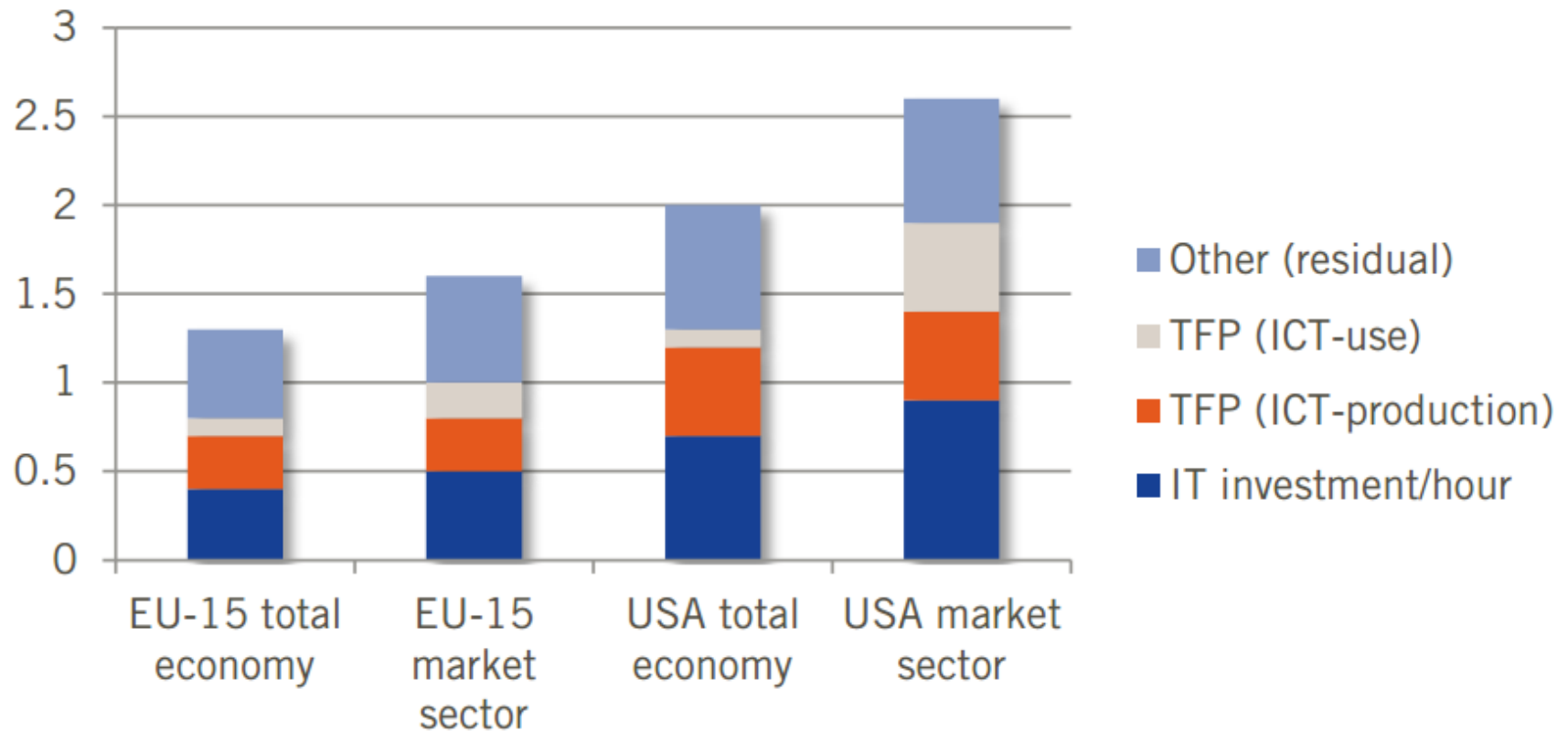
■ U.S. Gets More Growth From ICT



ICT contribution to average annual GDP growth rate, 1985-2010

Source: OECD State Extracts, Country Statistical Profile 2012

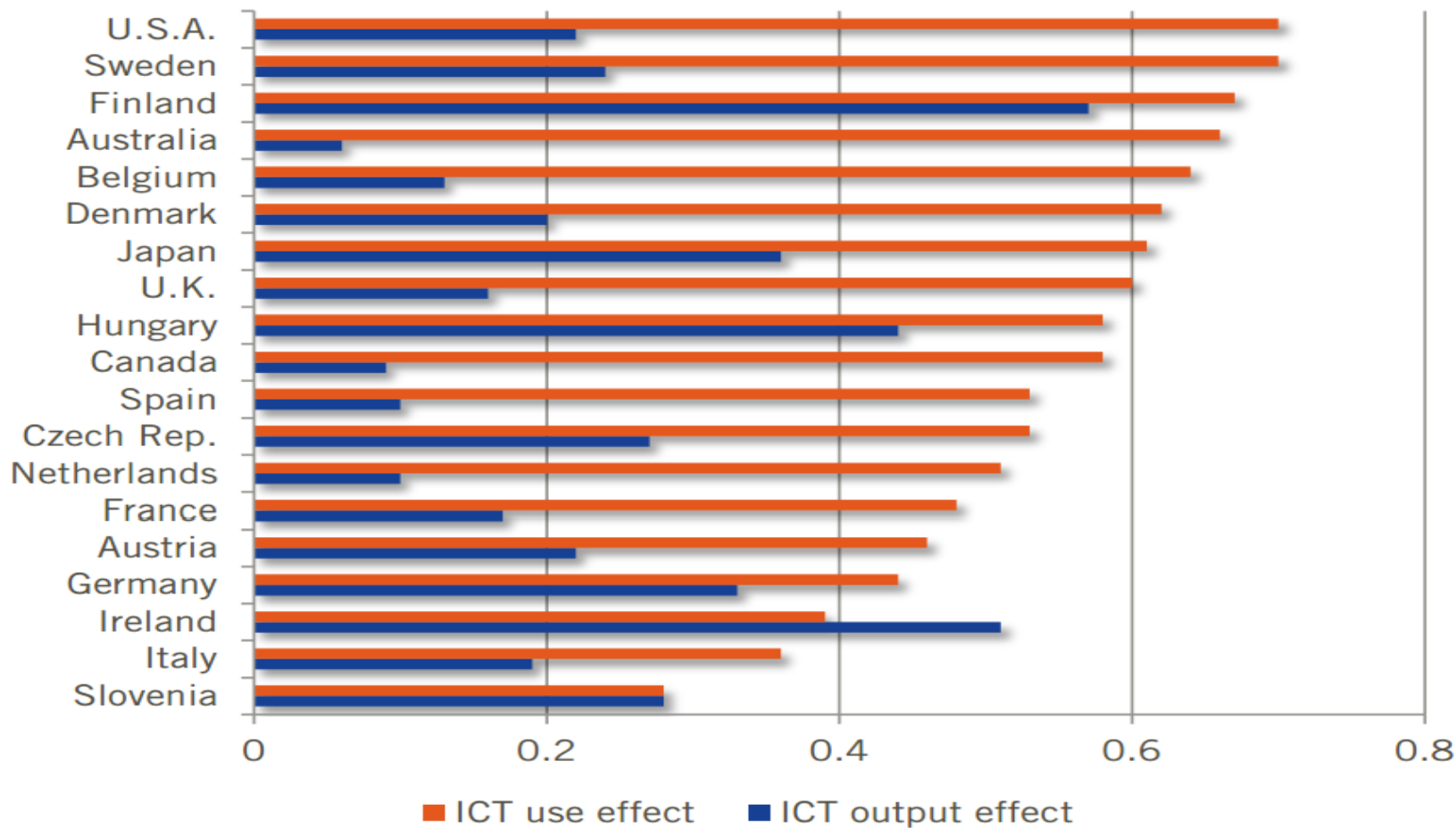
Most U.S. Advantage Comes From ICT Use and Investment, Not ICT Production



Components of labor productivity growth (average percentage points per annum), 1995-2007

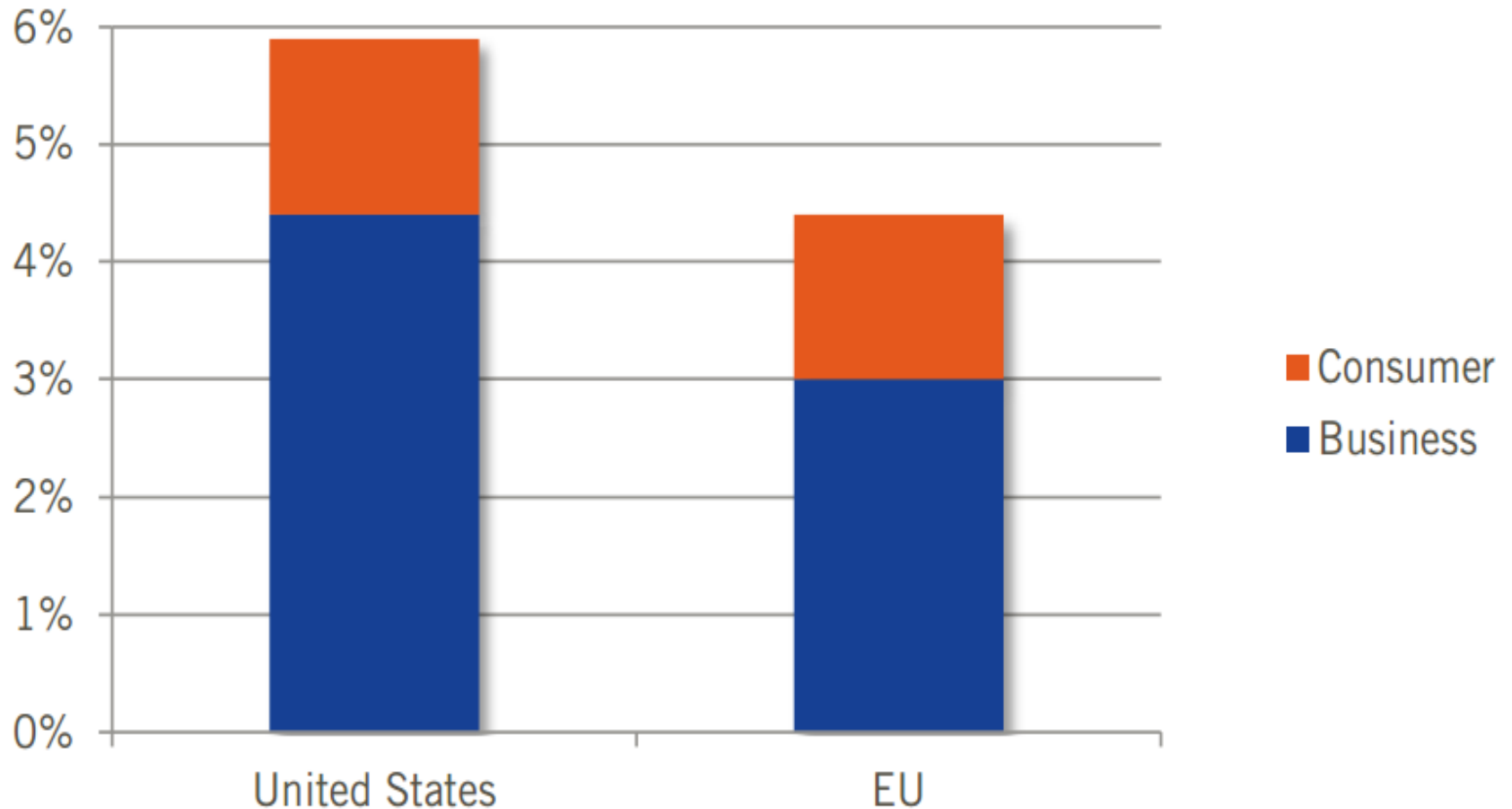
Source: "ICT Capital and Productivity Growth," EIB Papers 16, no. 2 (2011)

■ Most U.S. Advantage Comes From ICT Use



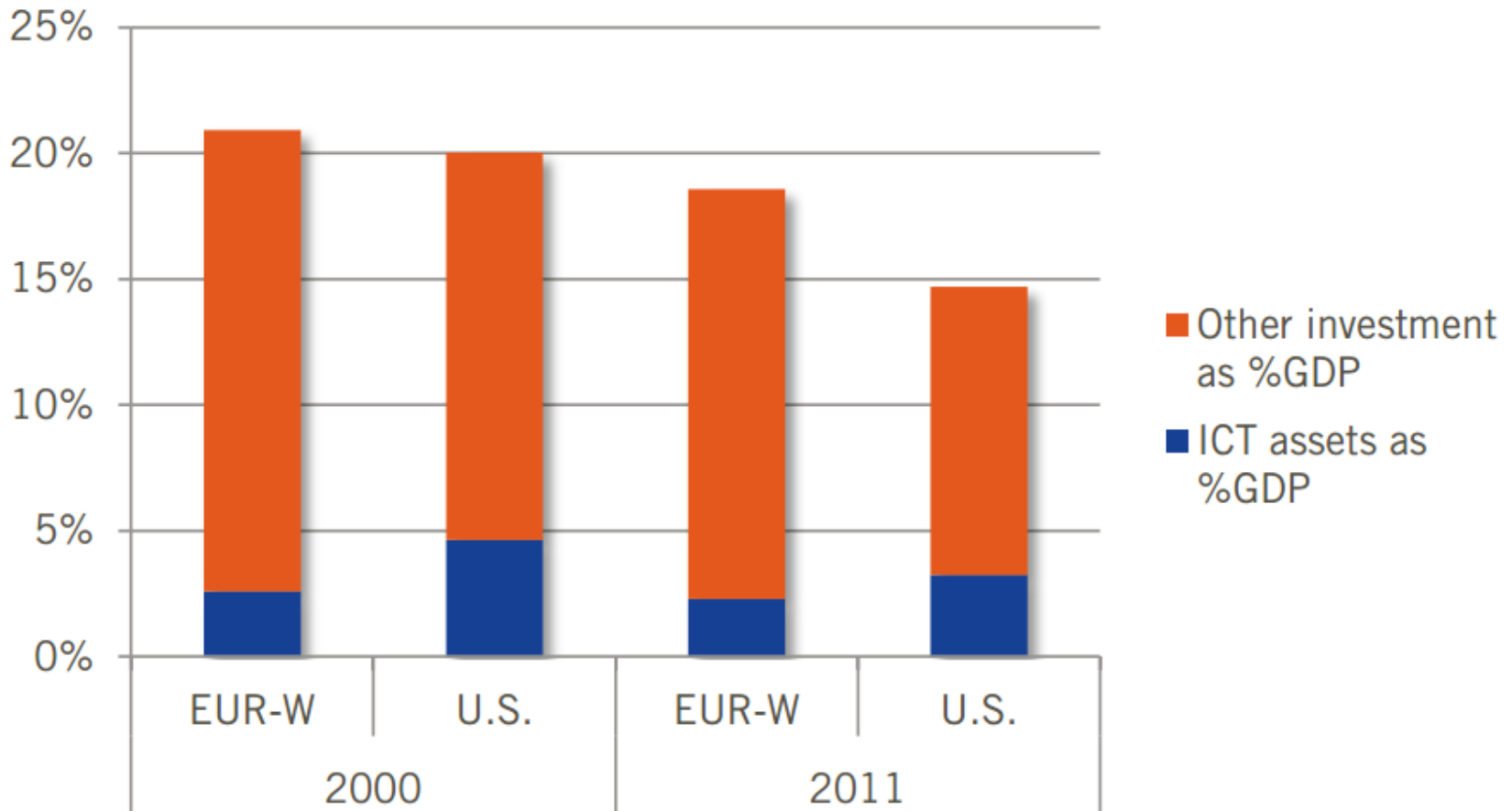
2000 to latest year, percentage points per annum - Source: *Economic Modelling* 29, no. 5 (2012)

■ U.S. Businesses Invest More in ICT



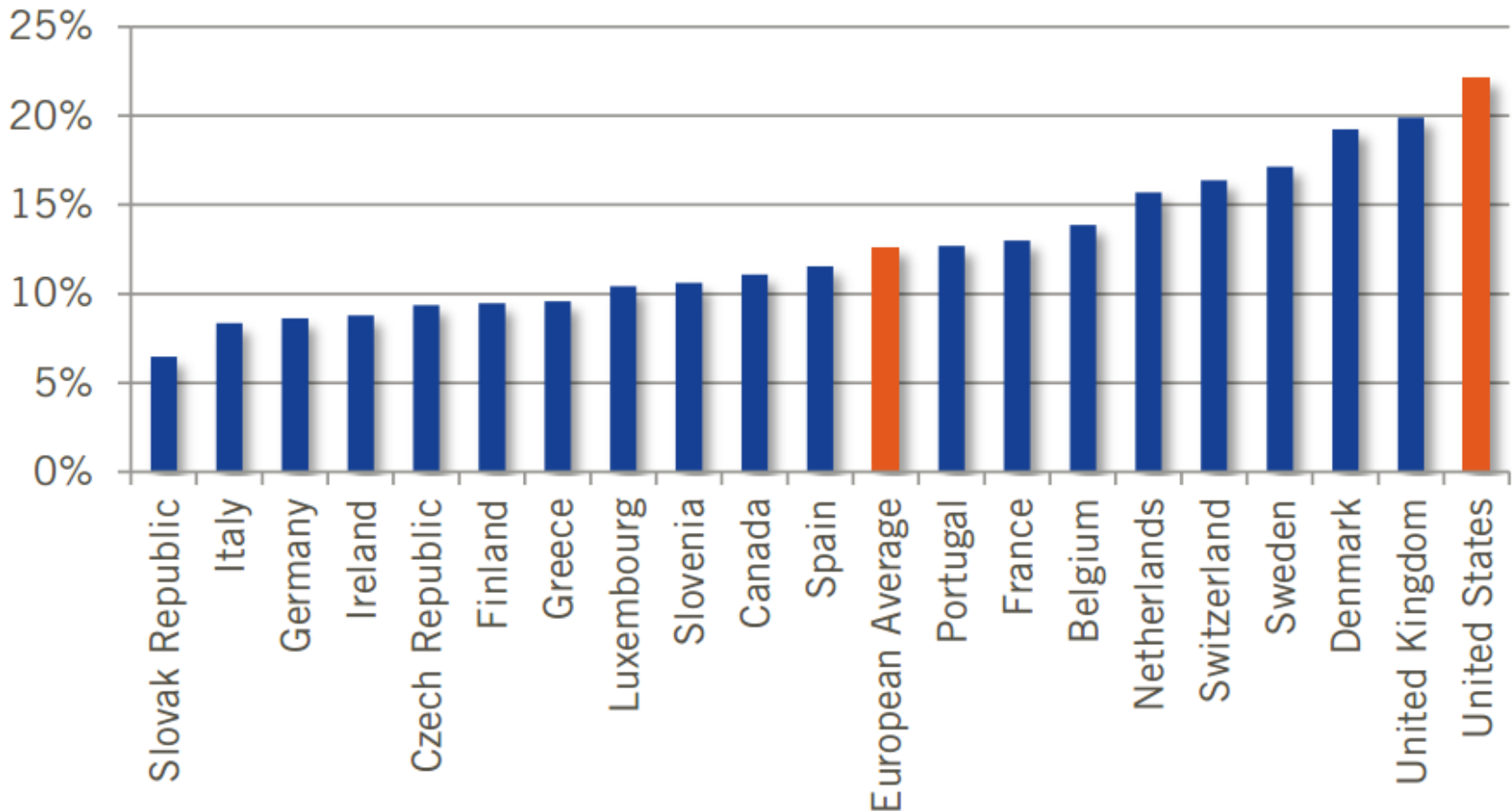
Share of GDP, 2010 - Source: National Science Foundation, Science and Engineering Indicators 2014

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



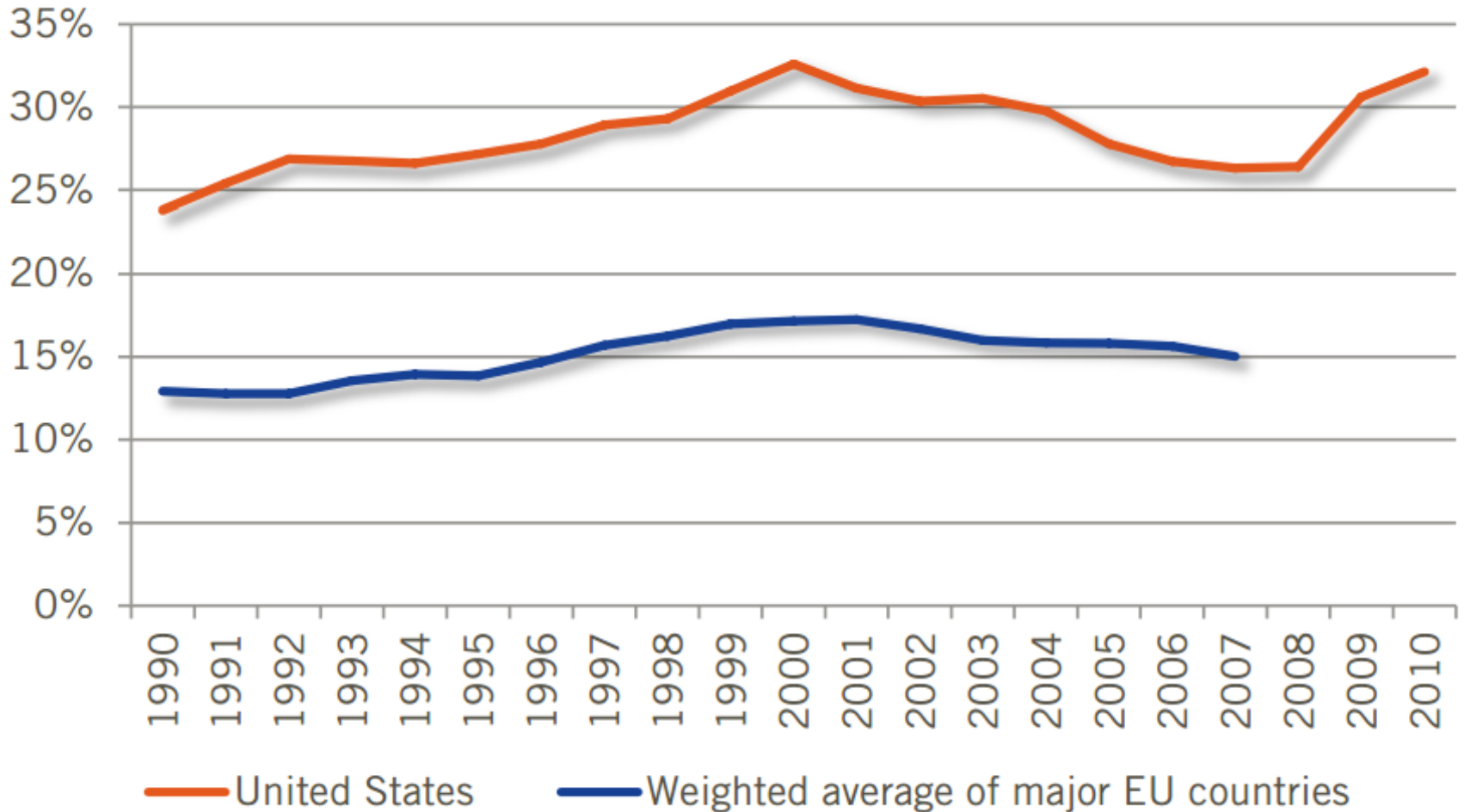
Gross fixed capital formation as a percentage of GDP (EUR-W is weighted average of major European countries) - Source: "ICT Capital and Productivity Growth," EIB Papers 16, no. 2 (2011)

■ US. Exceeds EU in ICT Investment (2)



ICT assets as percentage gross fixed capital formation, 2011 - Source: OECD, "Science, Technology and Industry Scoreboard 2013"

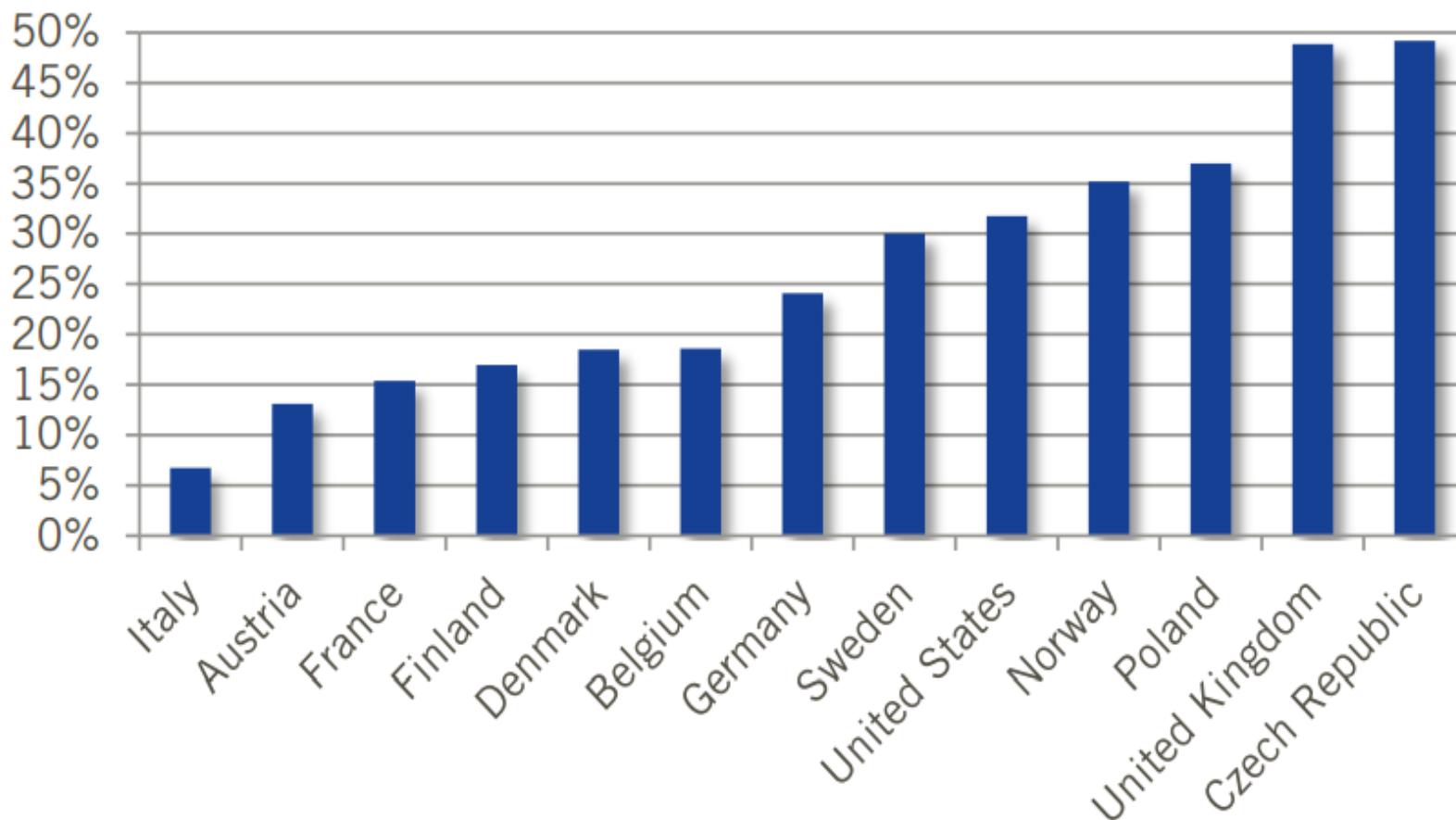
■ A Bigger Share of U.S. Investment Goes to ICT



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

As a Result, Services Productivity

■ Growth is High



Total labor productivity growth in services from 1999-2009

Source: OECD State Extracts, "Productivity Database By Industry 2012"

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A Robust DSM Requires a Robust

■ EU Digital Economy

- A digital single market is important but a digital market is even more important.
- In other words, digital market integration is not enough if organizations in Europe are not robust digital adopters.
- Policies should support increased digitalization of the EU economy, including investment in ICT.

Focus More On ICT Use By

■ All EU Organizations

Work to be the global leader – not in search, Web 2.0, and software – but in ICT *use*:

- Smart Cities
- Health Analytics
- IOT
- ITS
- Digital Cash
- Digital Signatures

■ Drive Digital Policy Development

- Each agency/directorate should develop digital transformation strategies.
- Expand tax incentives for investments in ICT hardware and software.
- Be world leader in ICT platform deployment (e.g. ITS, smart cities, health IT, etc.)

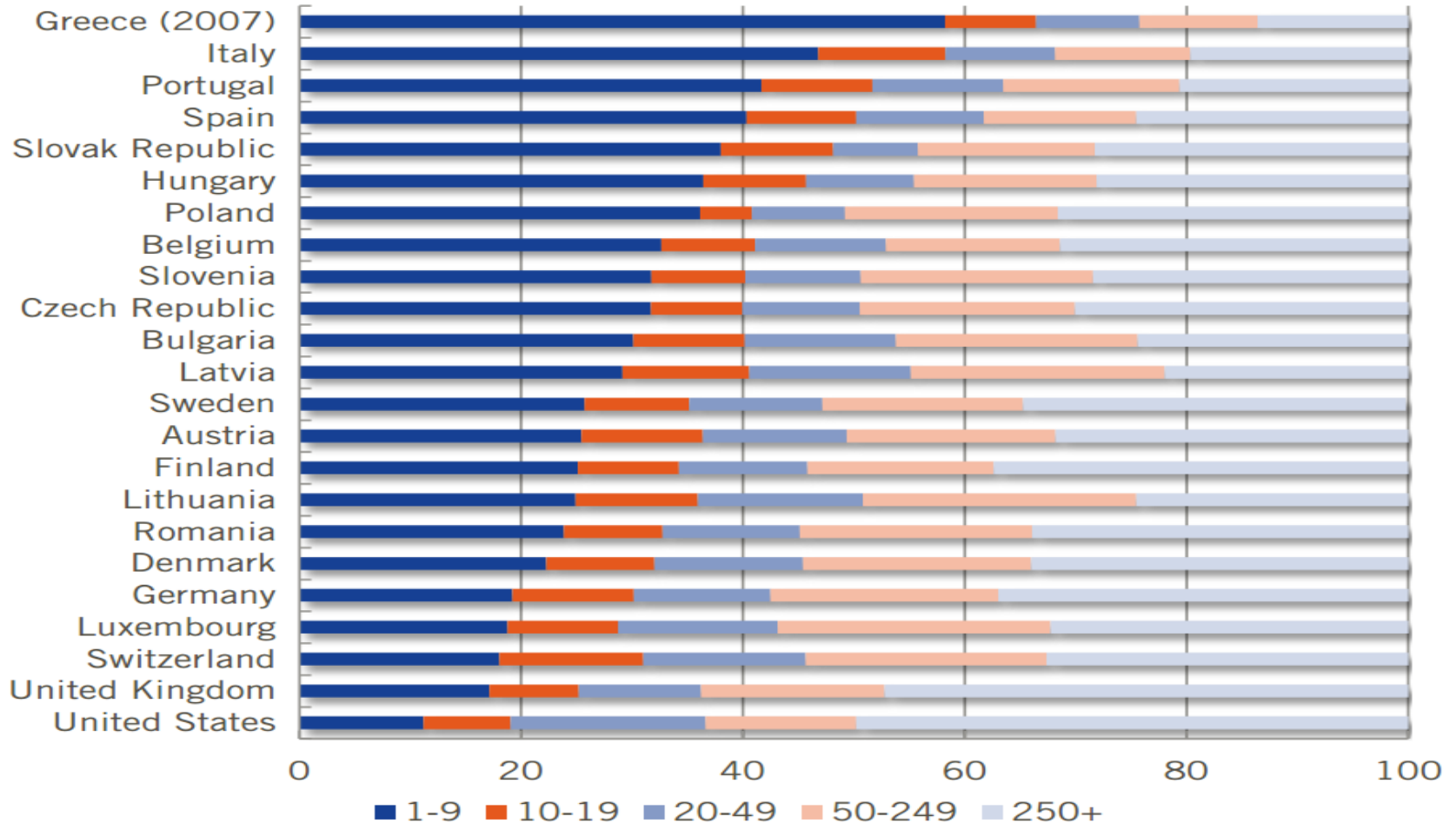
■ Reform Regulations, Especially at National Level

- Product market regulations, including industry entry rules (e.g., Uber), act as a productivity drag on ICT, lowering its impact by 16% for each dollar invested. (Van Reenen, et al.)
- Labor market regulations reduce productivity gains from ICT by approximately 45%. (Van Reenen, et al.)
- EU Privacy Directive reduces online ad effectiveness by 65%. (Tucker and Goldfarb)

Reduce SME Preferences, Exemptions and Subsidies

- ICT is characterized by high fixed costs and low marginal costs, meaning scale gives advantages.
- One core component of scale is firm size.
- EU has smaller firms than the U.S.
- EU economic policy should be firm size agnostic: favor neither large nor small firms.
- To the extent firms are favored, support fast growing new firms.

■ EU Firms Are Smaller Than U.S. Firms



% of workforce employed at enterprises by size, 2010 - Source: OECD, "Entrepreneurship at a Glance 2013"

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■ Scale Comes From Integrated Markets

- European Digital Single Market



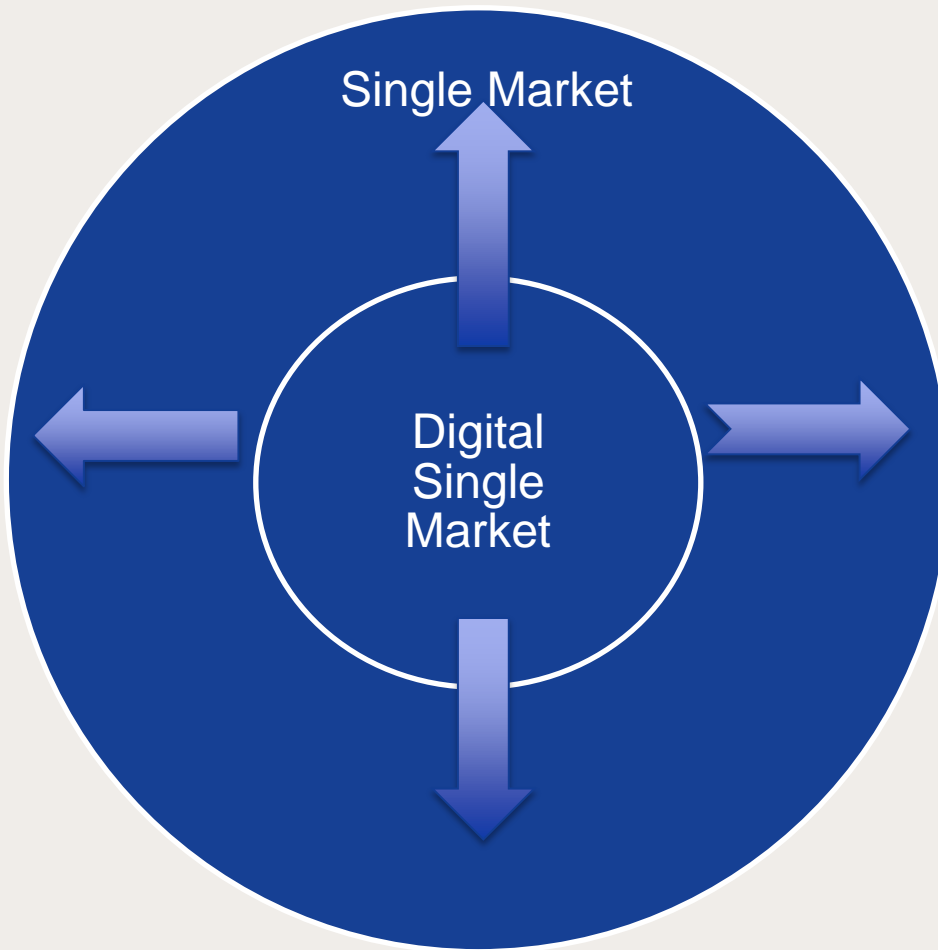
- European Single Market



- Transatlantic Market (TTIP)



■ EU Market Is Increasingly a Digital Market



- Most industries are becoming digital.
 - (e.g., banking, insurance, logistics, transportation).
- Even manufacturing is going digital.

■ Increasing All Companies Are Digital Companies



Using cloud computing to conduct data analytics to analyze financial data, website interactions, and customer service calls



Using big data to optimize inventory based on weather and historical sales



Volkswagen CEO: "Our cars are already mobile computer centers."



Using data, sensors, visualizations, etc. to explore 10,000 oil wells.

Principles For Achieving a DSM:

■ Scale Trumps Competition

- Scale (fewer and larger firms) leads to higher productivity, with consumer benefits from lower prices almost always outweigh any possible negative consumer effects from concentration.
- Lower prices are not possible if firm costs are higher and scale can reduce firm costs.
- This is especially true in the EU telecom market which suffers from too many providers who lack needed scale for efficiency and investment.

Principles For Achieving DSM:

■ Preemption Trumps National Choice (1)

- Article 8 of Directive 99/44/EC on Consumer sales states that member states can use more stringent provisions than the EC Directive.
- If the goal is consumer protection, than setting an EU floor with nations allowed to regulate above it can work. If the goal is a DSM, Brussels needs to set ceiling and floor that are the same: in other words, not let national governments set their own more stringent digital regulations.

Principles For Achieving DSM:

- **Preemption Trumps National Choice (2)**
 - The U.S. has a robust digital single market in part because of the Commerce Clause of the U.S. Constitution that limits state barriers to trade, but also because of Congressional or Administrative digital preemption of states. We see this in:
 - digital signature legislation;
 - Internet tax moratorium;
 - Contact Lens Prescription Release Act;
 - 96 Telecom Act and ban on state and local regulation of entry and rates of commercial and private mobile services and on entry into interstate or intrastate telecommunications service, and
 - FCC preemption local zoning laws on satellite dishes and restricts ability to limit cell tower construction.

Principles For Achieving DSM: Enable, Don't

■ Mandate Companies To Sell To the Single Market.

- Companies are not “discriminating” against particular markets or Europeans if they are not selling to all markets.
- Companies are making rational choices based on a variety of market and policy factors (e.g. geographic segmentation of digital content markets).
- The goal of DSM should be to enable companies who choose to sell to all of Europe to do so.

■ Steps for Achieving a DSM: Telecom/Broadband

- Because scale is key for broadband provision, facilitate cross-border mergers with the goal of significantly fewer European wireline and wireless telcos.
- Institute EU-wide spectrum auctions where carriers can bid on sub-national spectrum markets in all of Europe at once.

Steps for Achieving a DSM:

■ VAT Reform (1)

- Mini One-Stop Shop (Moss) is good first step, but not enough.
- Goal should be simplification, driven by a software solution. In other words, free, easy-to-use plug-in software for e-commerce vendors selling in Europe that calculates, collects and remits VAT automatically.
- Nations need incentives to participate in a streamlined VAT process.

Steps for Achieving a DSM: ■ VAT Reform (2)

- Give nations an incentive to play by exempting e-commerce sales from national VATs unless the nation successfully participates and agrees to a “streamlined VAT process.
- Model can be the Streamlined Sales Tax Organization efforts by 44 U.S. states.
<http://www.streamlinedsalestax.org/?page=faqs>

Steps for Achieving a DSM: ■ Cloud Policy

- Differentiate between consumer and business cloud services.
- No need to regulate cloud providers, especially providers of business services.
- EU businesses will still have legal responsibility based on national laws for data privacy and security even if they store data in the cloud in another EU nation (or non-EU nation).
- Firms can't escape liability for data by giving it to a cloud provider, regardless of the location of the provider.
- Keeping data in the nation does nothing for commercial privacy or security.

■ Cloud Policy For a DSM

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Steps for Achieving a DSM:

■ Digital Content Policy

- Recognize that unlike e-commerce and the cloud, much of digital content is a consumption technology, not a production technology. As such, the lack of a single EU digital content market has virtually no impact on EU economic growth.
- To the extent it is an EU production technology (e.g., EU-based content production), EU-based content providers who seek scale, especially in video, can voluntarily choose a pan-European license.
- In addition, differential pricing can be pro-consumer if it enables content companies to sell digital content for less in lower income EU nations.

■ Related 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>
- Why Geoblocking Can Increase Consumer Welfare and Improve Income Equality
<http://www.itif.org/publications/why-geoblocking-can-increase-consumer-welfare-and-improve-income-equality>

Thank You

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