

How Digital Technologies Impact Employment and Consumption in the EU

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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,
- Tech, productivity, and jobs,
- Science and tech policy, and
- Innovation and trade policy.

Today's Presentation

1

Digital Hype vs. Digital Reality

2

Understanding the Sharing and Gig Economies

3

Broader Digital Technology Policies

Prognosticators Say a Digital Revolution Will Transform Everything

A few recent books:

- *The Singularity*
- *The Second Machine Age*
- *The Third Wave*
- *The Fourth Industrial Revolution*
- *The Fifth Technology Revolution*
- *The Sixth Wave*
- *Infinite Progress*



But It's Not a Revolution, It's Evolution



So...



Digital Hype vs. Digital Reality



Hype: Moore's Law is Speeding Up

- “We are entering the second half of the “exponential chess board.””

– Erik Brynjolfsson

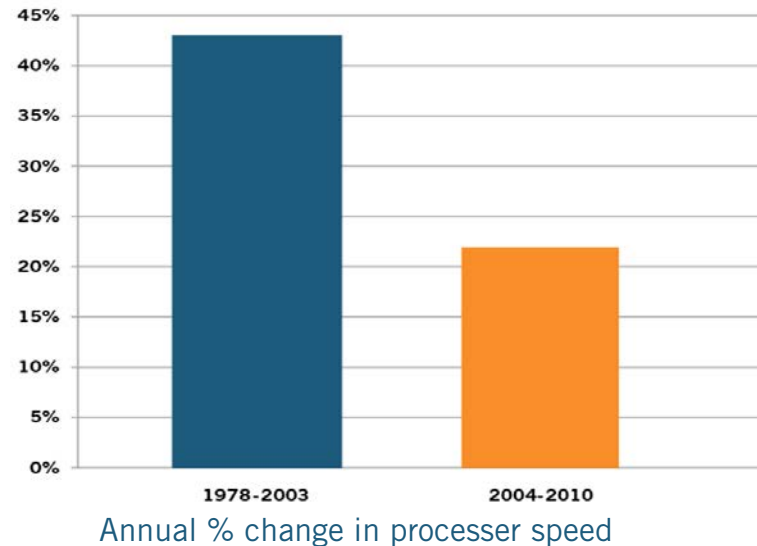
- “Information technology ... progresses exponentially.”

– Ray Kurzweil



Reality: Moore's Law is Slowing Down

- Speed increases are slowing, while transistors per dollar are decreasing.
- Even Gordon Moore's says his law "can't continue forever. The nature of exponentials is that you push them out and eventually disaster happens."



Hype: Change is Faster Than Ever

- “We are entering into an era in which the pace of innovation is growing exponentially.”

– Peter Diamandis and Steve Kotler

- “We’re in a world of exponential transformational change.”

– Daniel

Burrus

“Explosive and exponential advances.”



– Joseph Jaffe

Reality: Technology Is Diversifying, Not Accelerating

	Years Before Used in <u>50% of U.S. Homes</u>
• <i>Electricity</i>	28
• <i>Telephones</i>	26
• <i>Radios</i>	8
• <i>Televisions</i>	9
•	
• <i>Personal Computers</i>	17
• <i>Public Internet</i>	9
• <i>Mobile Phones</i>	15
• <i>eBooks/Tablets</i>	9
• <i>Home Robots (Roomba)</i>	
• <i>FitBits and similar</i>	
• <i>Electric Cars (Tesla)</i>	
• <i>Consumer 3D Printers</i>	
• <i>Smart Watches (Bluetooth)</i>	
• <i>iHealth (Blood pressure DIY)</i>	
• <i>Nest (Thermostats)</i>	

None of these innovations will reach the 50% threshold in less than a decade

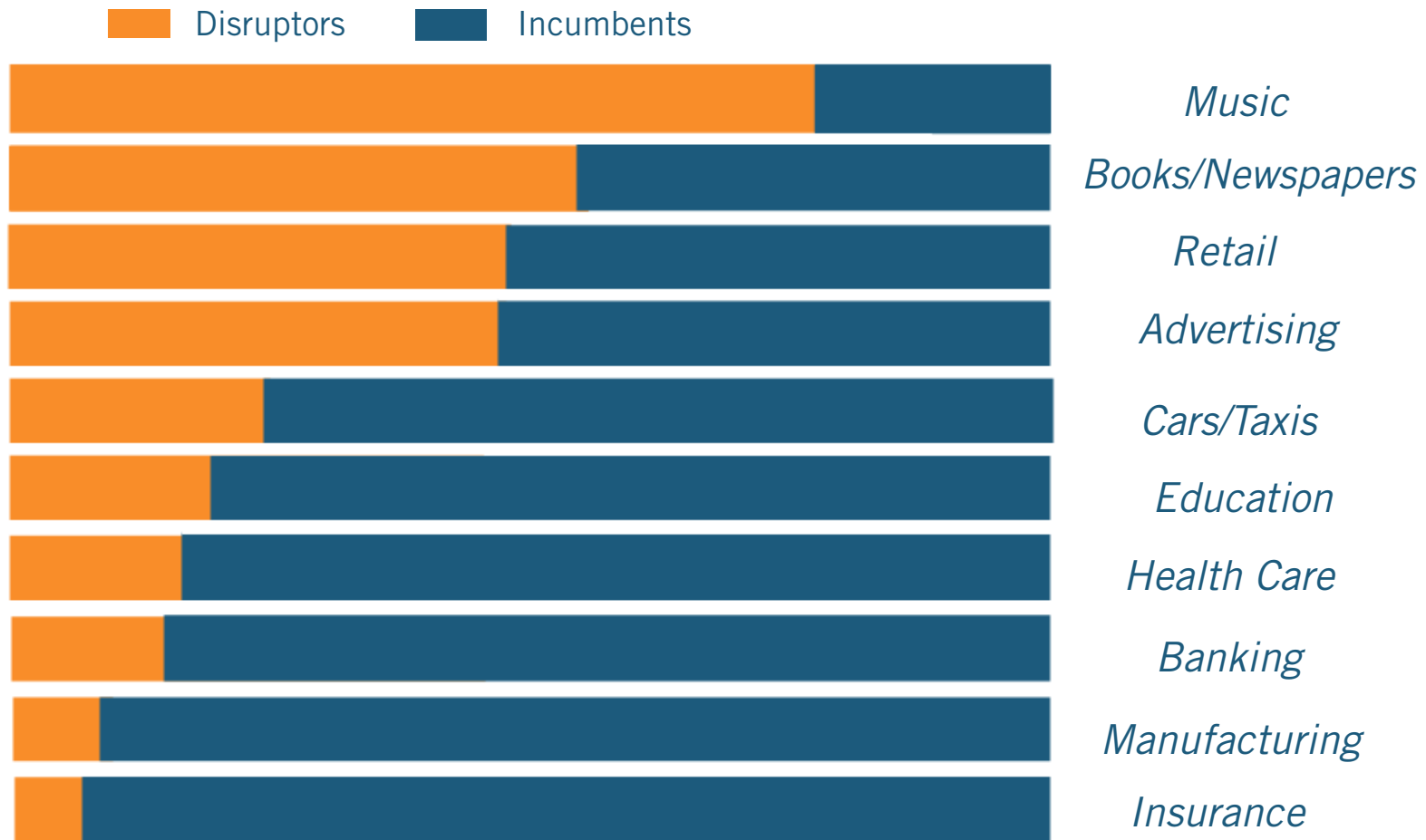


Source: David Moschella, Leading Edge Forum, CSC, 2015

Hype: Digital Technology Will Revolutionize Everything

- “Major technological innovations are on the brink of fueling momentous change.”
– Klaus Schwab

Reality: Tech-Based Industry Disruption Varies Widely By Sector



Source: David Moschella, Leading Edge Forum, CSC, 2015

Hype: Digital Revolution Will Lead to Massive Job Losses

- With AI “perhaps as much as **20%** of the work force will be **out of work** in a generation.”
- “We are beginning a gradual process whereby over the next 30-40 years many people will be displaced, creating **massive problems of unemployment** and dislocation.”
- “We must convince our leaders that they should **give up the notion of full employment**. The pace of technical change is accelerating.”

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– Gail Garfield Schwartz, 1982

- “We are beginning a gradual process whereby over the next 30-40 years many people will be displaced, creating **massive problems of unemployment** and dislocation.”

– Wasily Leontief, 1983

- “We must convince our leaders that they should **give up the notion of full employment**. The pace of technical change is accelerating.”

– Nils Nilson,

1984

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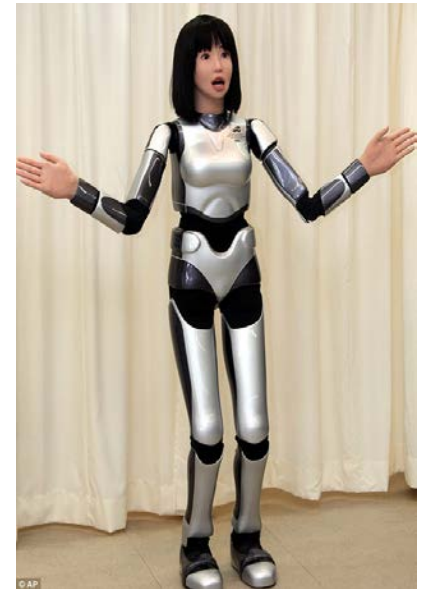
- “Highly educated workers are as likely as less educated workers to find themselves displaced.”
– Paul Krugman
- “Brain work may be going the way of manual work.”
– *The Economist*
- “75% unemployment by 2100.”
– Martin Ford
- “50% of US jobs destroyed.”
– Osborne and Frey
- “Will the last human worker please turn out the lights.”
– Mike Rettig, Brookings

Reality: Digital Tech Won't Lead to Joblessness

Most jobs are really hard to automate.

Current U.S. Employment:

- 500K pre-k teachers
- 230K athletes/coaches
- 110K detectives
- 70K massage therapists
- 45K clergy
- 25K computer scientists
- 6K fashion models



Hype: We Will All be “Uberized”

- “Every worker has essentially become a contractor, who no longer benefits from job security and longevity.”

– Klaus

Schwab



Reality: Sharing Economy Will be Relatively Small

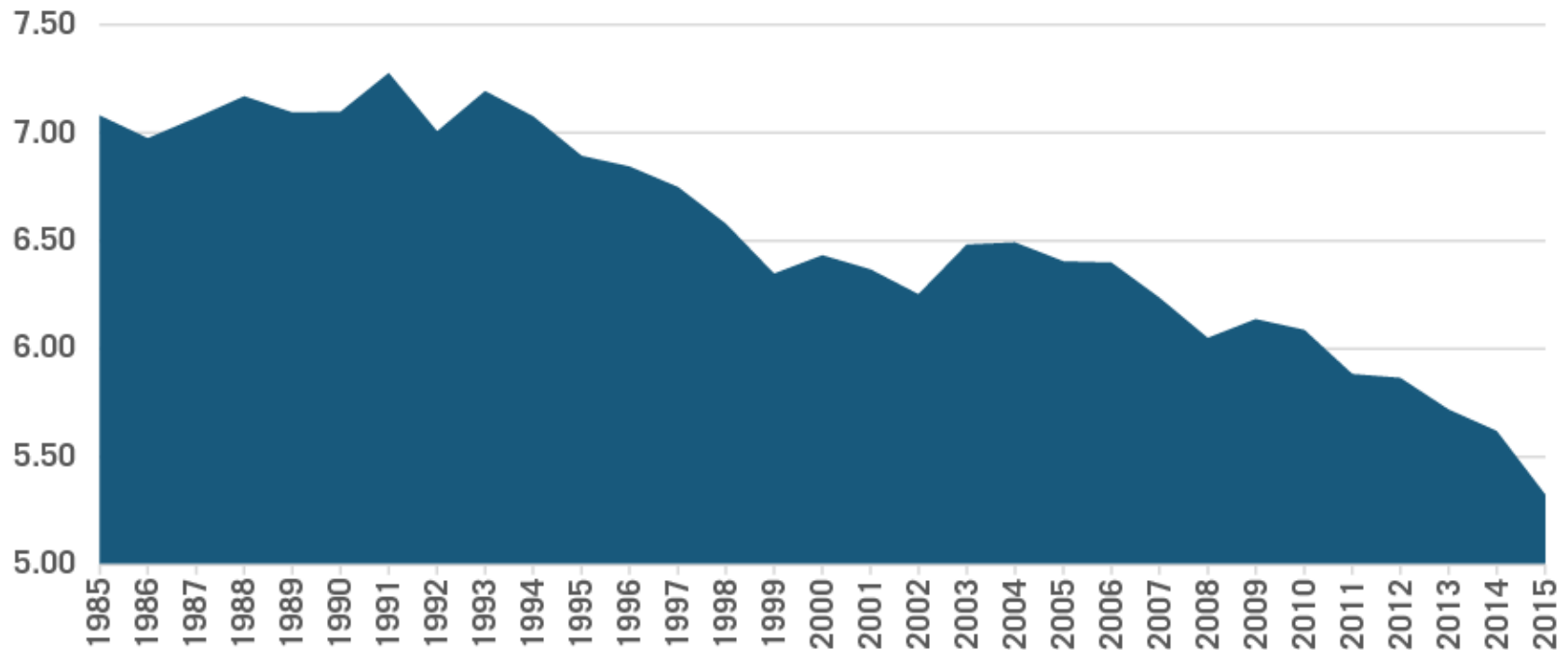
- In the U.S., there are 600,000 to 1.5 million gig economy workers: less than 1% of U.S. workforce.
 - Brookings, McKinsey Global

Institute

- Projected to be 1.8 million by 2020.

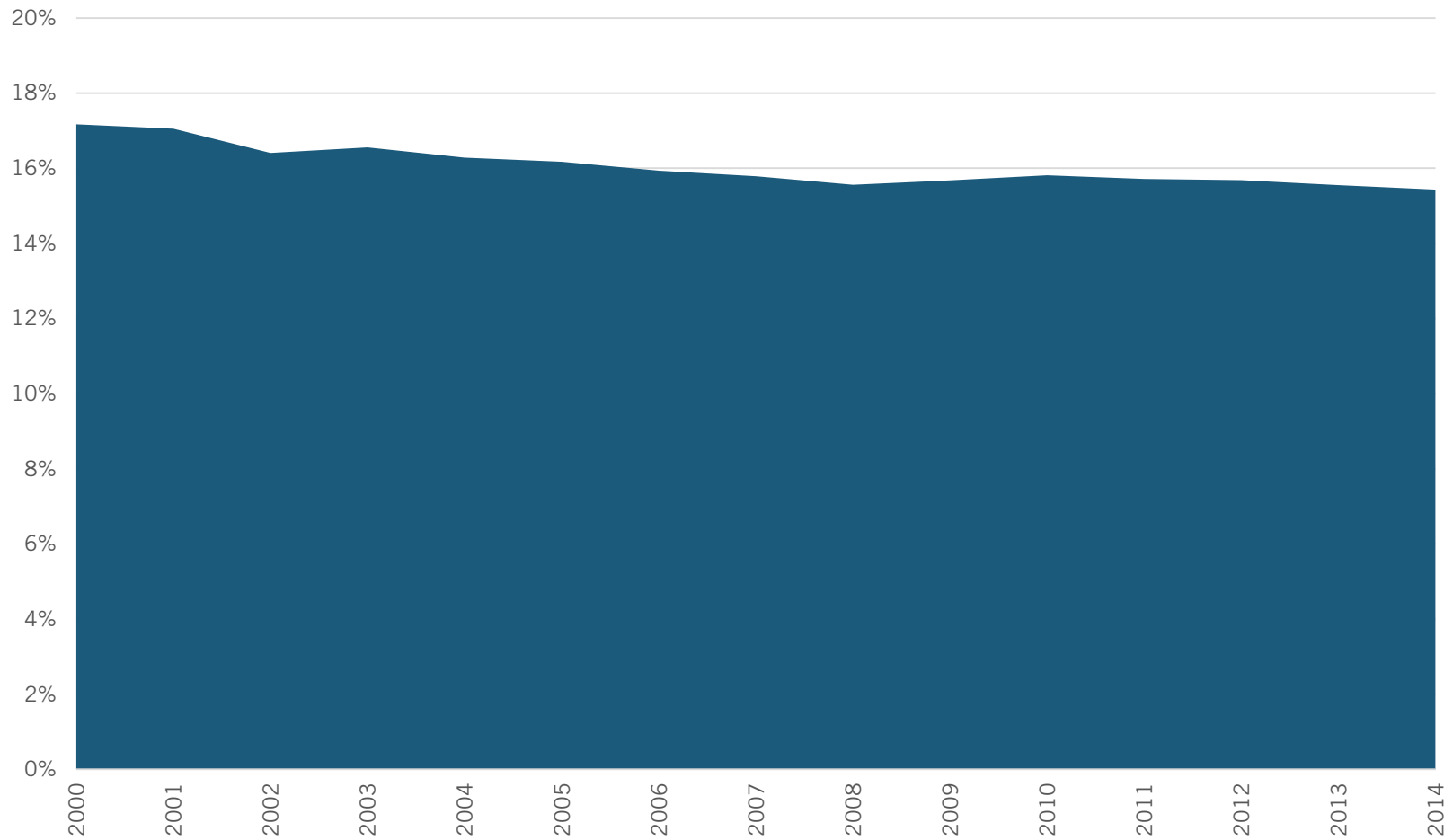


Self-Employed Workers Becoming Smaller Share of U.S. Economy



U.S. Self Employed as a Percent of Non-Agricultural Workforce; Source: R Street Analysis of BLS Data

Self-Employed Workers Becoming Smaller Share of EU Economy



Source: Eurostat Database, Annual National Accounts

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Sharing Economy is Different from the Gig Economy

Sharing Economy – digital platforms match spare capacity and demand.

- Peer to peer: Parking Panda, Rentoid, SnapGoods, Peerby
- Business to consumer: Bike share and Car2go
- Some can be both: Dogvacy and Airbnb

Gig Economy – digital platforms match workers & customers.

- Task Rabbit, Uber, Getaround, Shareyourmeal, Wonolo, Hourly Nerd, and Upwork

Benefits of the Sharing Economy

- Enables consumers to save money.
- Enables individuals (sharers) to increase income.
- Increases economic output and environment sustainability by improving resource efficiency.

Regulating the Sharing Economy?

- Applying the precautionary principle will hurt innovation.
- Little reason for regulation. Reputation systems (“peer regulation”) substitute for regulation.
- No need to regulate occasional sharing.

Benefits of the Gig Economy

- Boosts consumer welfare by better matching needs with supply and increasing competition.
- Provides flexibility for workers. (43% of U.S. gig workers either have a full time or another part time job; 91% like control about when they work).
- Stepping stone/support for entrepreneurship (63% either have small business or want one).
- Helps workers get work (63% supplement income).

– Source: Intuit Quick Books, *The On-Demand Workforce*

Regulating the Gig Economy?

- Gig workers' income should be taxed.
- Find a “third way” for labor market regulation of gig economy that enables platforms to provide services and help to their “workers” without triggering full employer obligations.
- The gig and sharing economy depend on exchange and use of data. This can be enabled in ways that protect consumers from harm.

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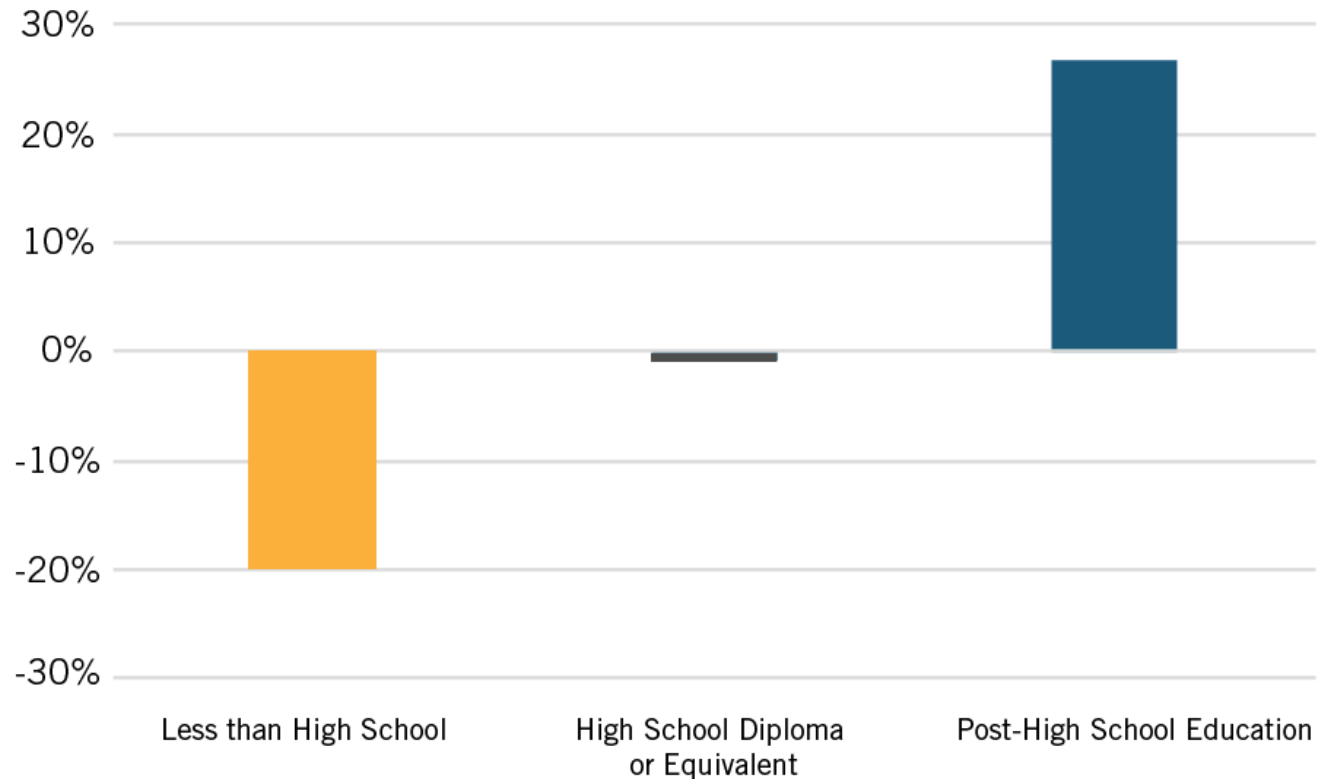
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Broader Digital Technology Policies

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- **Support post-high school education.**

Demand for Highly Educated Workers Will Grow



Projections 2013 to 2025 Source: European Centre for the Development of Vocational Training)

Broader Digital Technology Policies

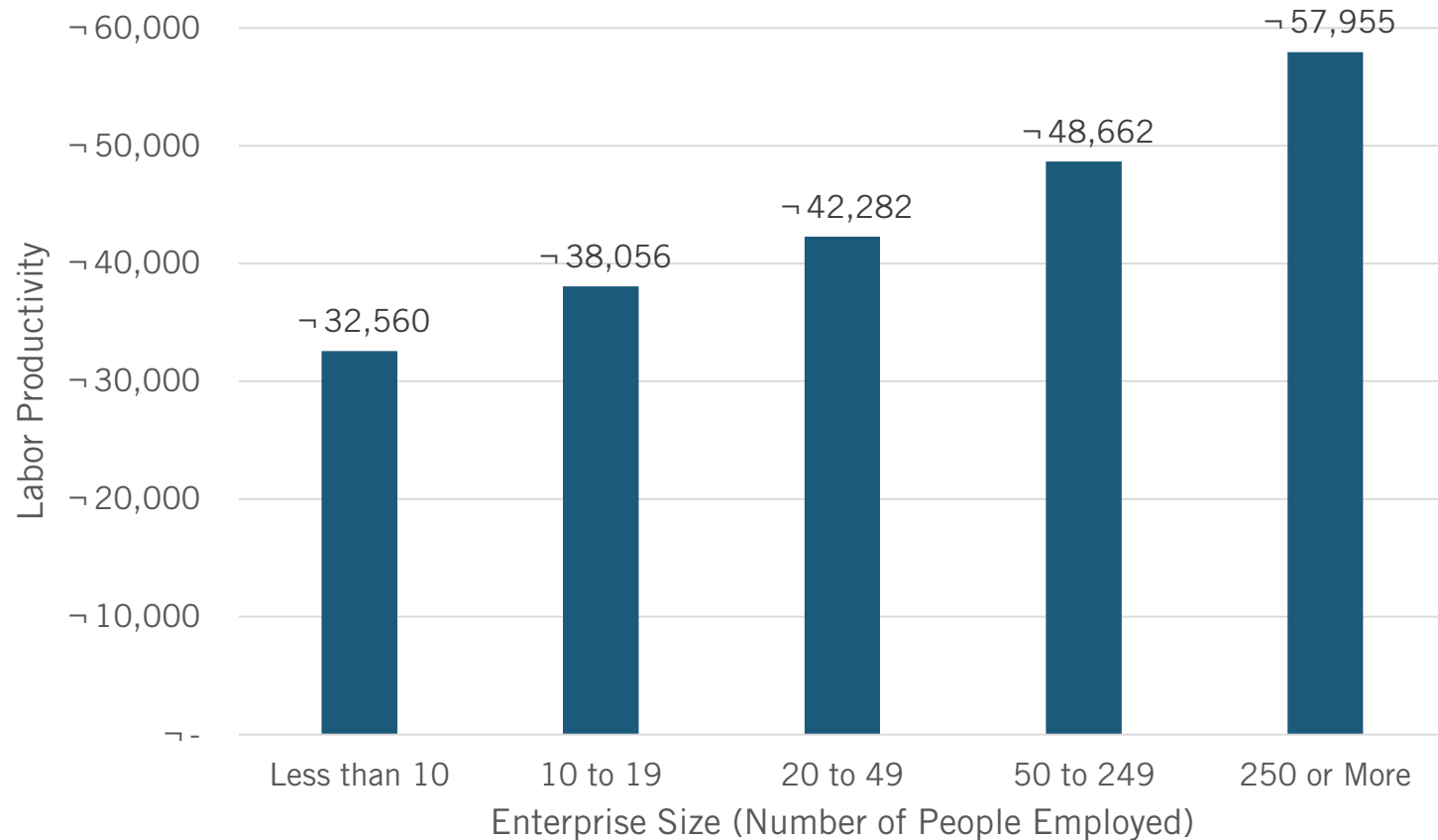
- Support post-high school education.
- **Improve IT skill development, including “double deep” skills (e.g., “individuals skilled in not just their particular job function but also the relevant information technologies).**

– David Moschella, Leading Edge Forum, Digital Skill Standards

Broader Digital Technology Policies

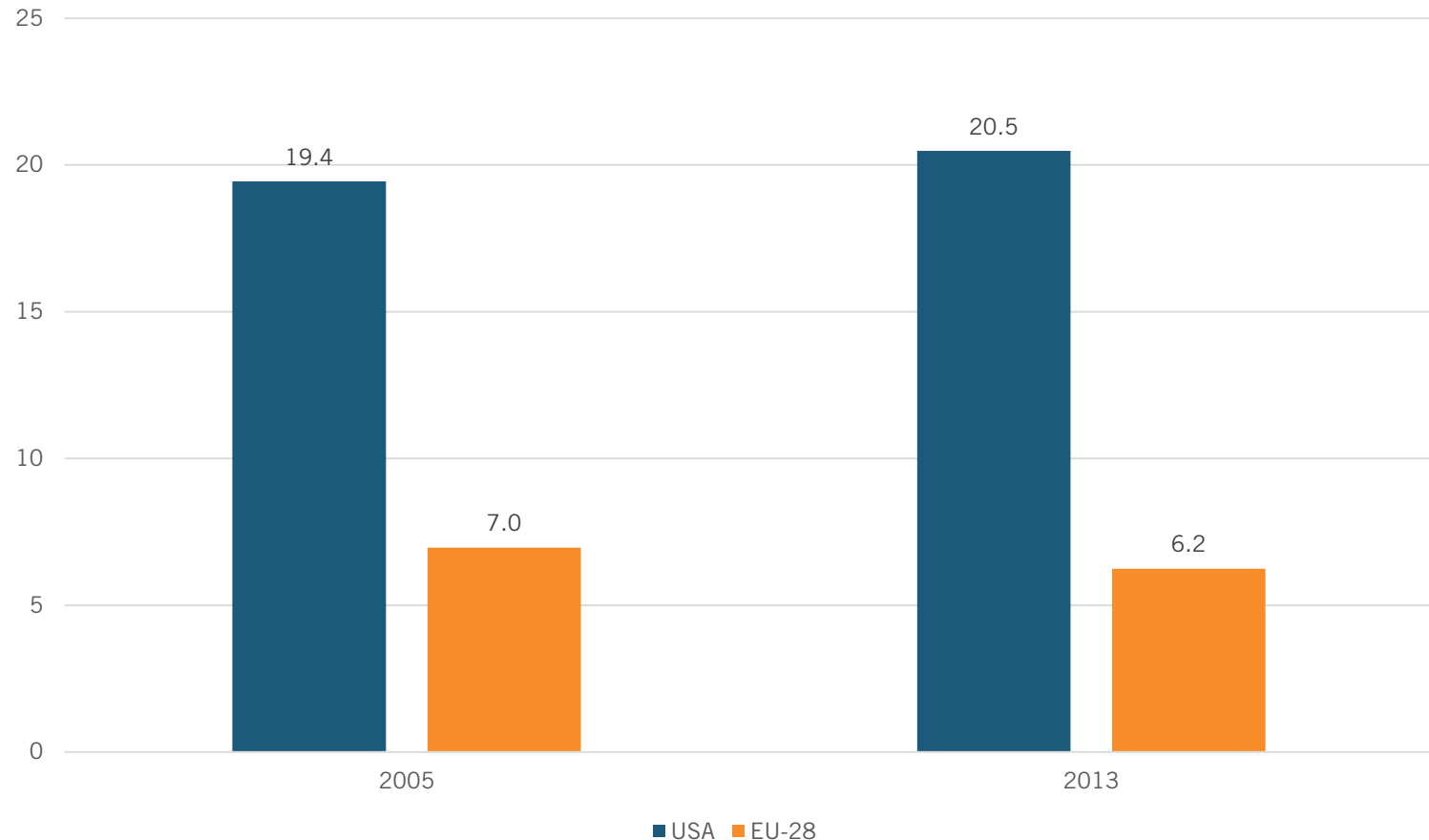
- Support post-high school education.
- Improve IT skill development.
- **Embrace big: scale economies for ICT are critical to driving productivity growth**
 - Economies with the highest productivity – Germany, Switzerland, and the UK – have the smallest proportion of workers in small firms.

The Larger the EU Enterprise, the More Productive



Labor Productivity by Size of Enterprise (2012). Source: Eurostat, Structural Business Statistics. Countries not included: Denmark, Ireland, France, Sweden, Portugal, Romania, Hungary, Italy, Cyprus

Average EU Firm Size is Small and Shrinking



Source: U.S. Census Bureau, Statistics of U.S. Businesses; Eurostat Database, Structural Business Statistics

Recent Related ITIF Publications

- “Why Internet Platforms Don’t Need Special Regulation”
- “Are Robots Taking Our Jobs, or Making Them”
- “Raising European Productivity Growth Through ICT”
- “The e-Skills Manifesto: Digital Skills in the United States”
- Seeing the Forest for the Trees: Why the Digital Single Market Matters for Transatlantic Relations

UPCOMING ITIF EVENT

Seizing Europe's Data Innovation Opportunity

MONDAY, FEBRUARY 29, 2016 -2:00 PM TO 6:00 PM

International Press Center, Polak Room,
Résidence Palace 155, rue de la Loi – Blok C
Brussels

Thank You!

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