

The Base Trends of the Economy: Globalization, Technological Change, and Competition

Stephen Ezell
VP Global Innovation Policy, ITIF

European Economy Conferences, Third Edition:
Toward a New European Social Contract

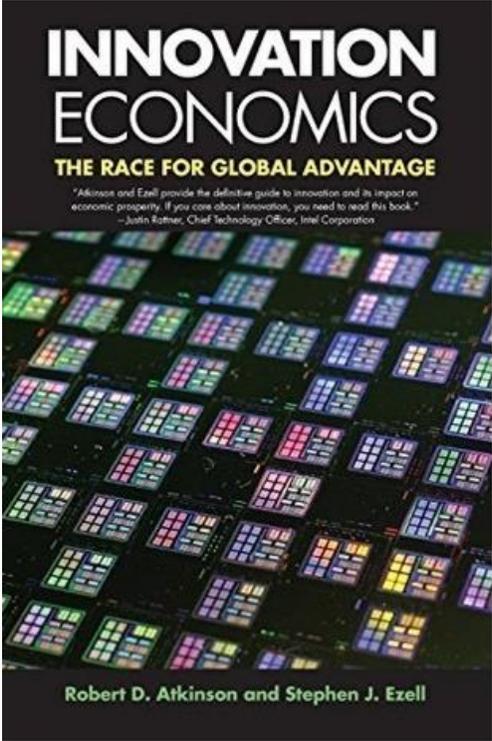
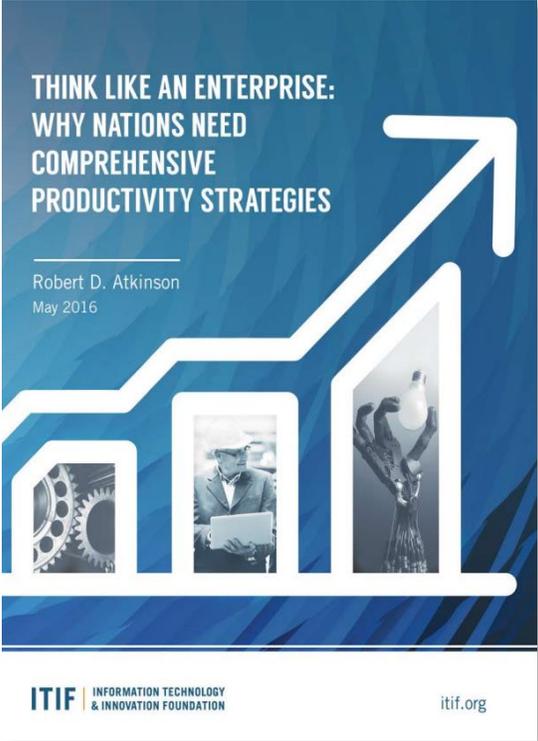
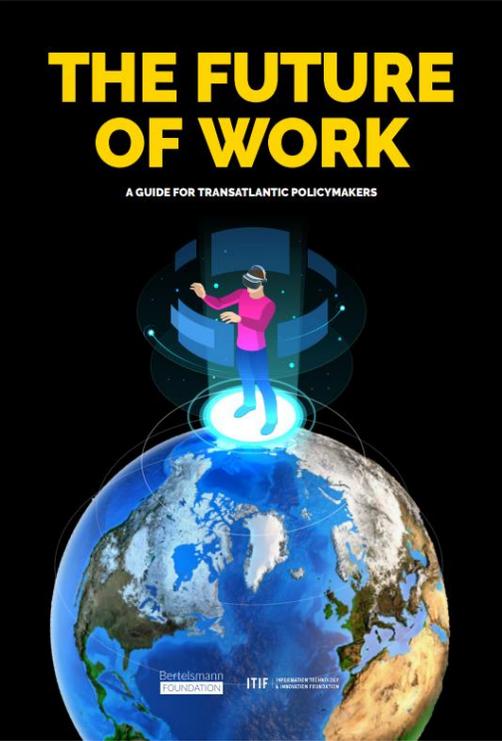
Barcelona, Spain
October 25, 2019

About ITIF

- The world's leading science and technology policy think tank.
- Supports policies driving global, innovation-based economic growth.
- Focuses on a host of issues at the intersection of technology innovation and public policy across several sectors:
 - Innovation and competitiveness
 - IT and data
 - Telecommunications
 - Trade and globalization
 - Life sciences, agricultural biotech, and energy



ITIF Publication Highlights



Today's Presentation

- 1 The Digital Economy and Coming CAS Wave
- 2 Europe's Digital Sectors Have Lagged
- 3 Key Strategic Considerations for the EU
- 4 Policy Recommendations

Increasingly Digitalized Global Economy

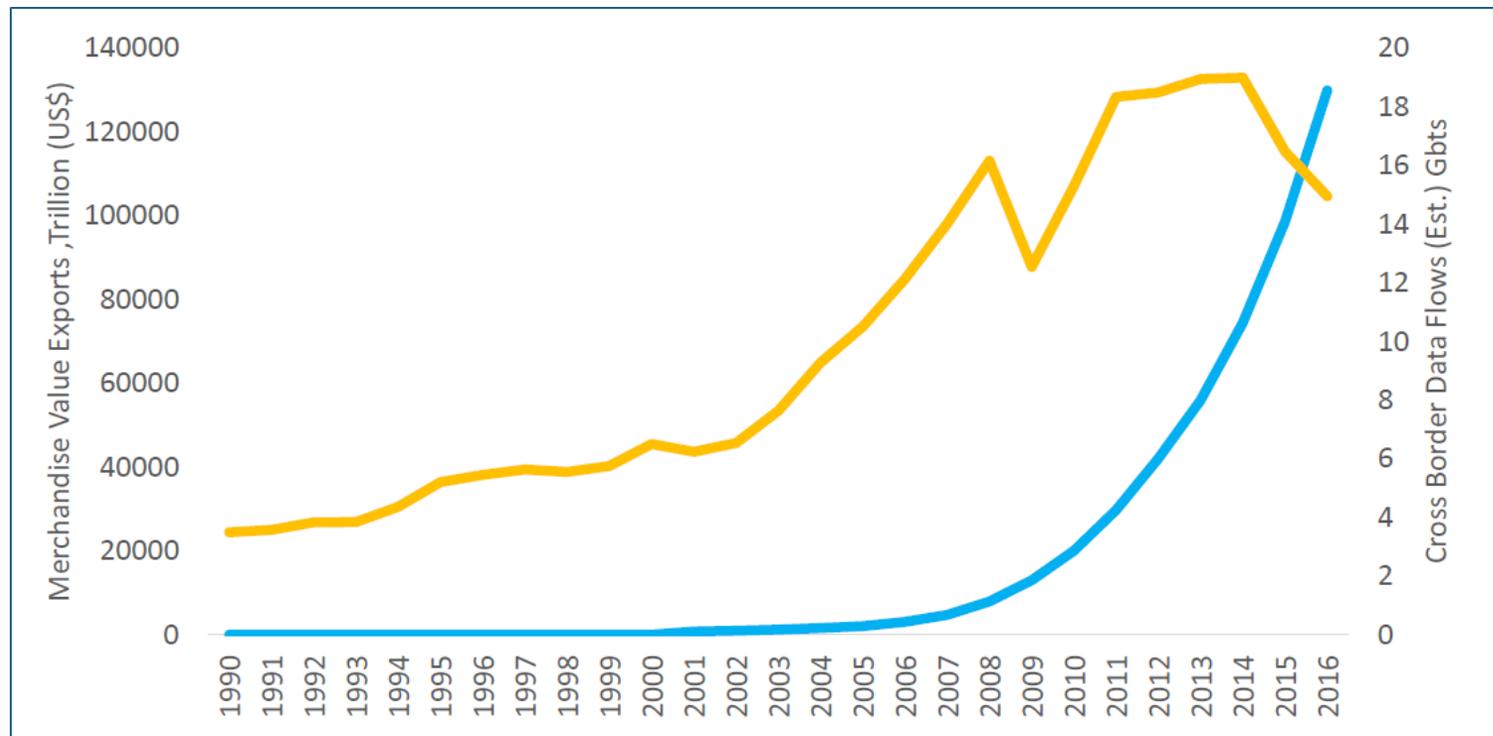
- Digital economy accounts for 25% of global GDP.
- 50% of all value created in the global economy will be created digitally over the next decade.
- Increased cross-border data flows have contributed 10% to global GDP growth over the past decade.



Sources: Accenture, "Digital Disruption: The Growth Multiplier"; McKinsey Global Institute, "Digital Globalization: The New Era of Global Flows"

Increased Cross-Border Data Flows Driving Global GDP Growth

- The value of international data flows surpassed the value of international merchandise trade for the first time in 2015.



Sources: Victor Mulas, The World Bank “Value in Global Economy Moves to Digital Business”; McKinsey Global Institute, “Digital Globalization: The New Era of Global Flows”

Tech Innovation Progresses Along S-Curves

Steel-Tech System



Electro-Mechanical Tech System



Digital Electronic Tech System



Takeoff Adoption Slowdown Takeoff Adoption Slowdown Takeoff Adoption Slowdown
1890-1905 06-1928 1929-44 1945-58 59-74 74-93 94-2000 2001-2010 2011-27

Tech Innovation Progresses Along S-Curves

Steel-Tech System



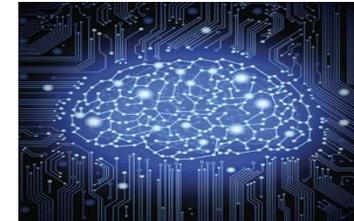
Electro-Mechanical
Tech System



Digital Electronic
Tech System



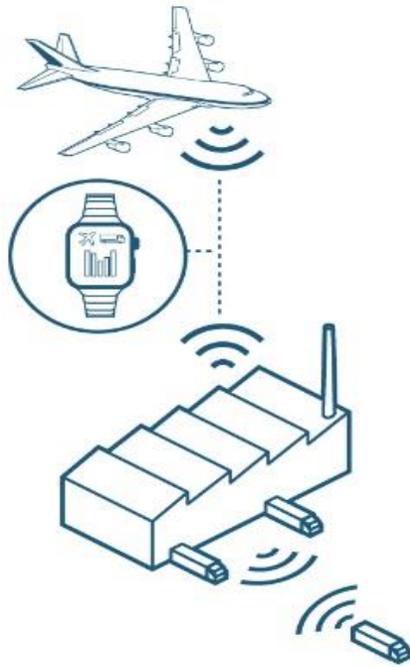
Connected,
Autonomous, &
Smart Tech
System
- CAS -



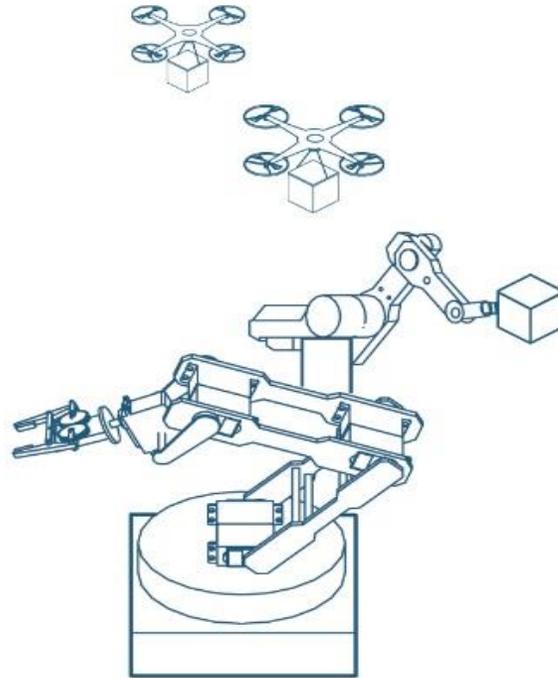
Takeoff	Adoption	Slowdown	Takeoff	Adoption	Slowdown	Takeoff	Adoption	Slowdown	Takeoff	Adoption
1890-1905	06-1928	1929-44	1945-58	59-74	74-93	94-2000	2001-2010	2011-26	2027-38	2038-??

The Next “CAS” Wave

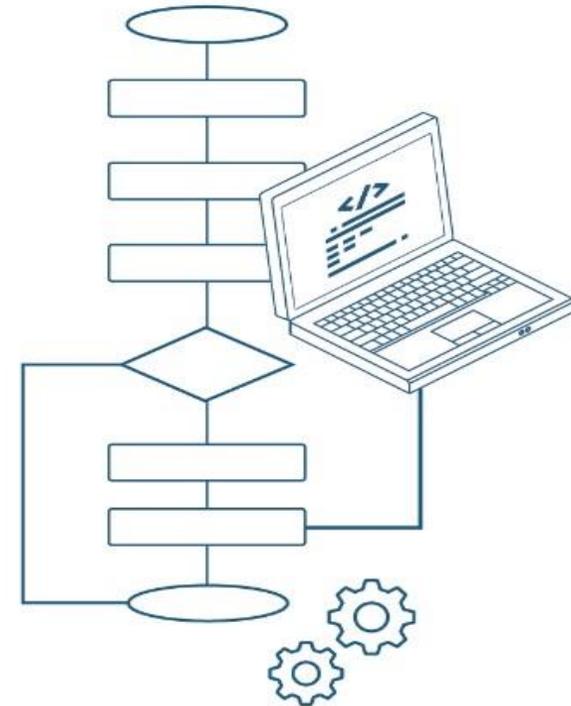
CONNECTED



AUTOMATED



SMART



CAS Implications

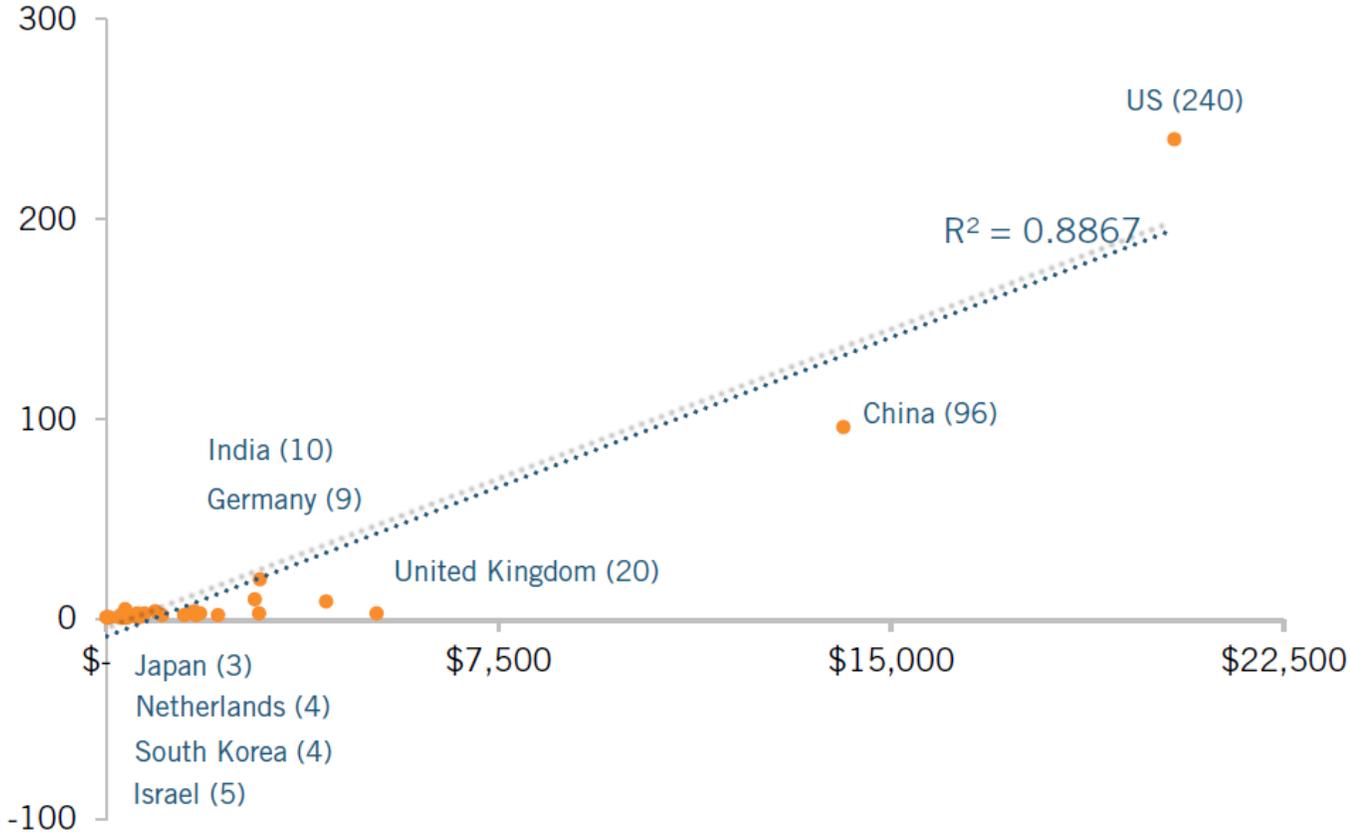
1. More industries will become “innovation-based industries,” including agriculture, manufacturing, education, retail, financial services, transportation, and health care.
2. Revived productivity growth/new opportunities for leadership.
3. Key task for governments is to facilitate the “installation” of CAS in most industries.
4. This includes clearing the way for innovative disruptors of existing industries.

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Europe's Digital Tech Sectors Have Lagged

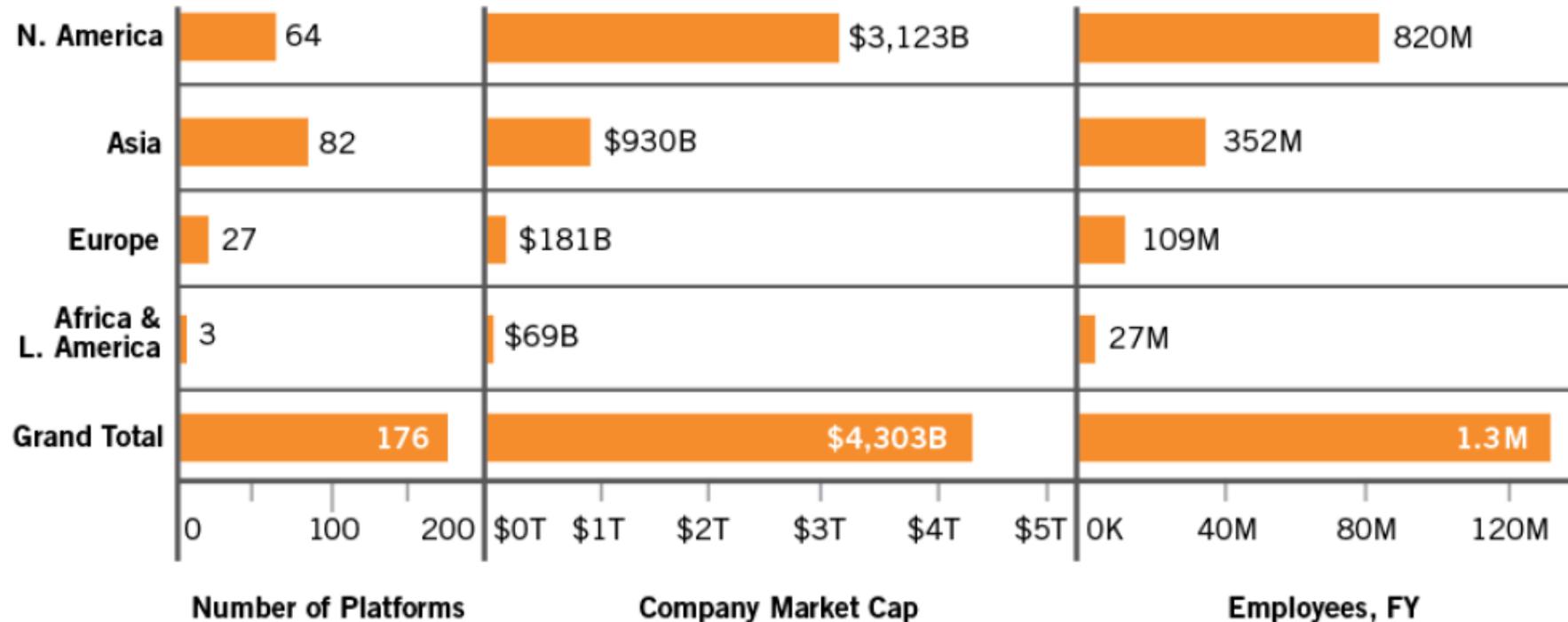
Number of Tech Unicorns and Exits/GDP (\$ Millions)



Source, ITIF, "Promoting European Growth, Productivity, and Competitiveness By Taking Advantage of the Next Digital Technology Wave"

Europe's Digital Tech Sectors Have Lagged

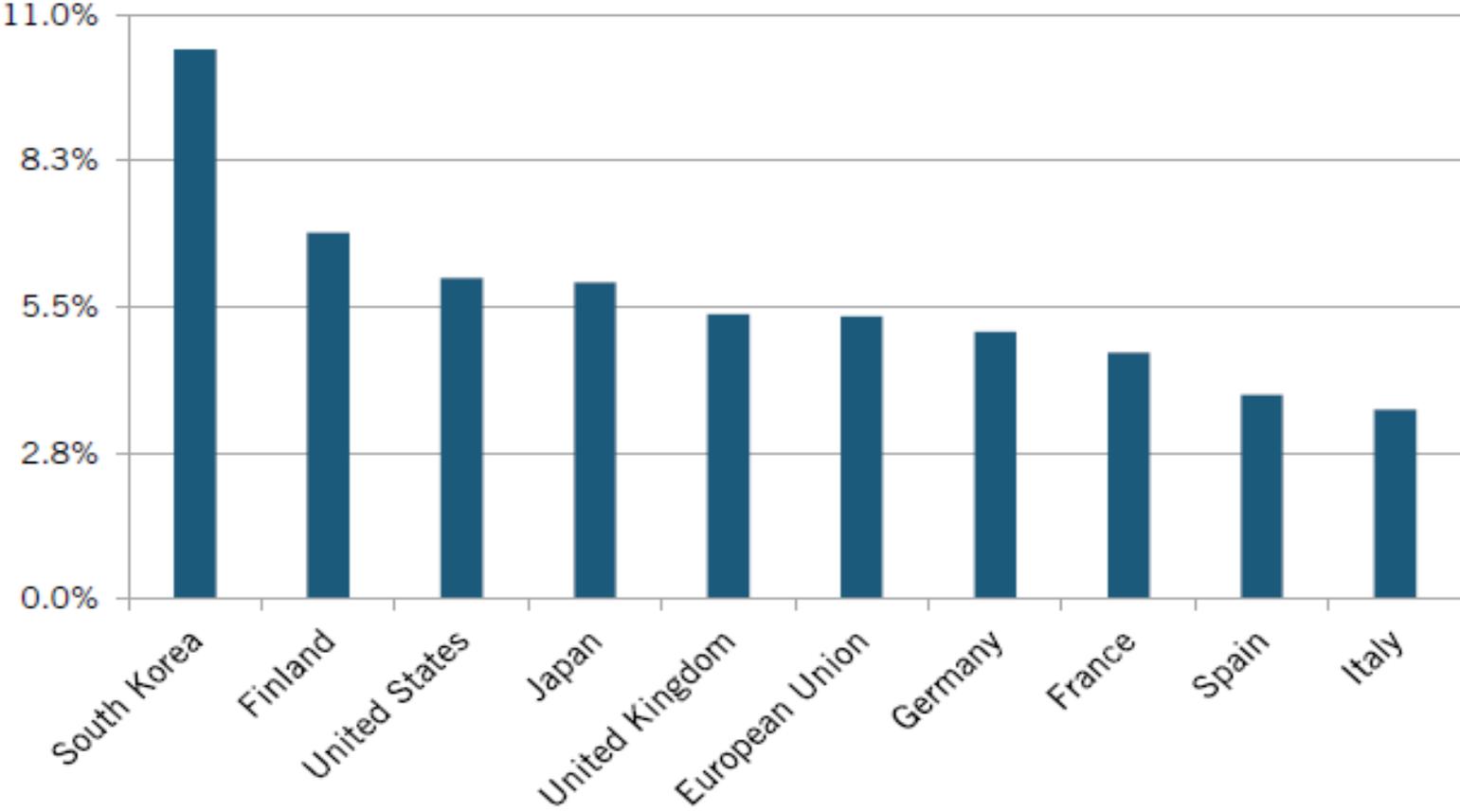
Digital Platform Companies by Region, 2015



Source, ITIF, "Promoting European Growth, Productivity, and Competitiveness By Taking Advantage of the Next Digital Technology Wave"

Europe's ICT Sectors Contribute Less to Economic Output

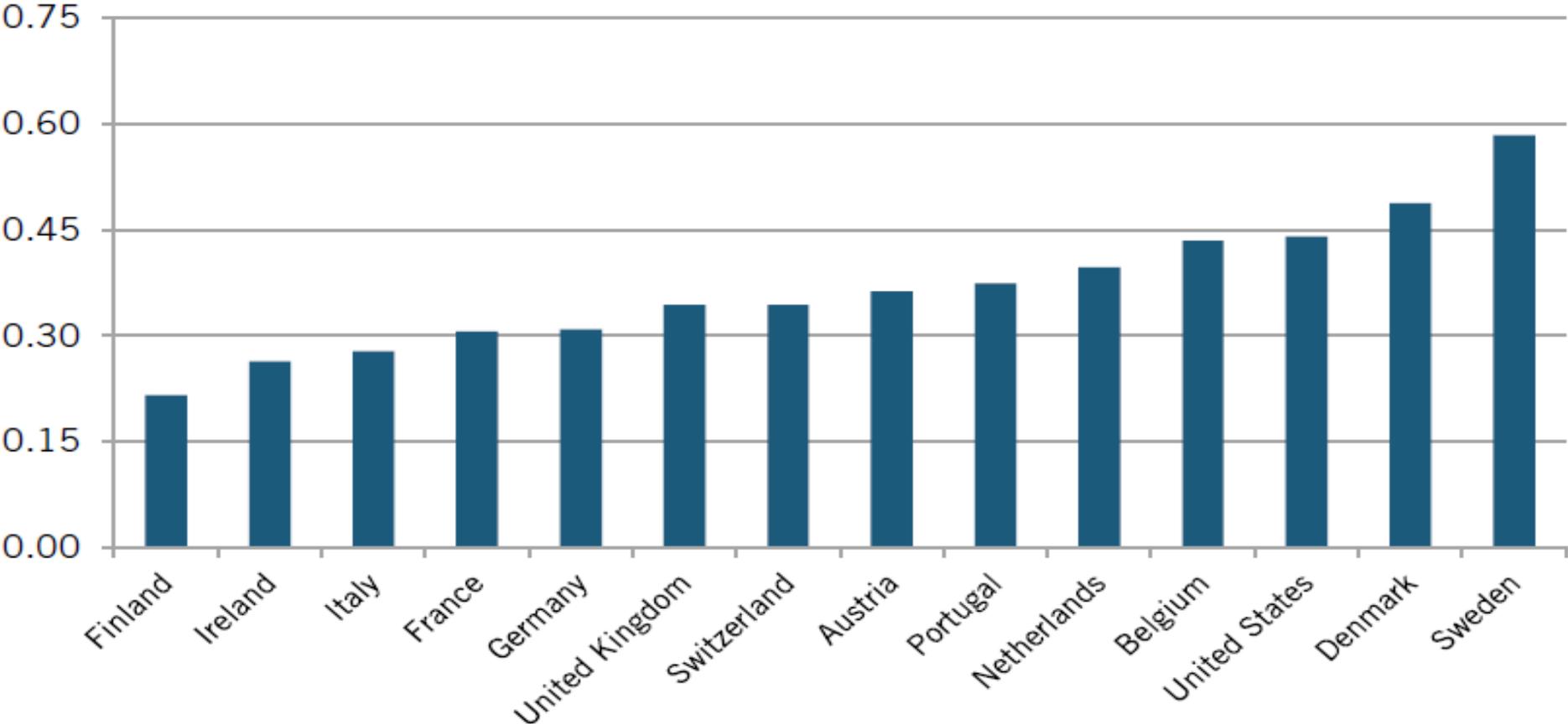
Value Added in the ICT Sector as a % Total Value Added, 2015



Source, ITIF, "Promoting European Growth, Productivity, and Competitiveness By Taking Advantage of the Next Digital Technology Wave"

Creation and Use of ICTs Contributes Less to GDP Growth

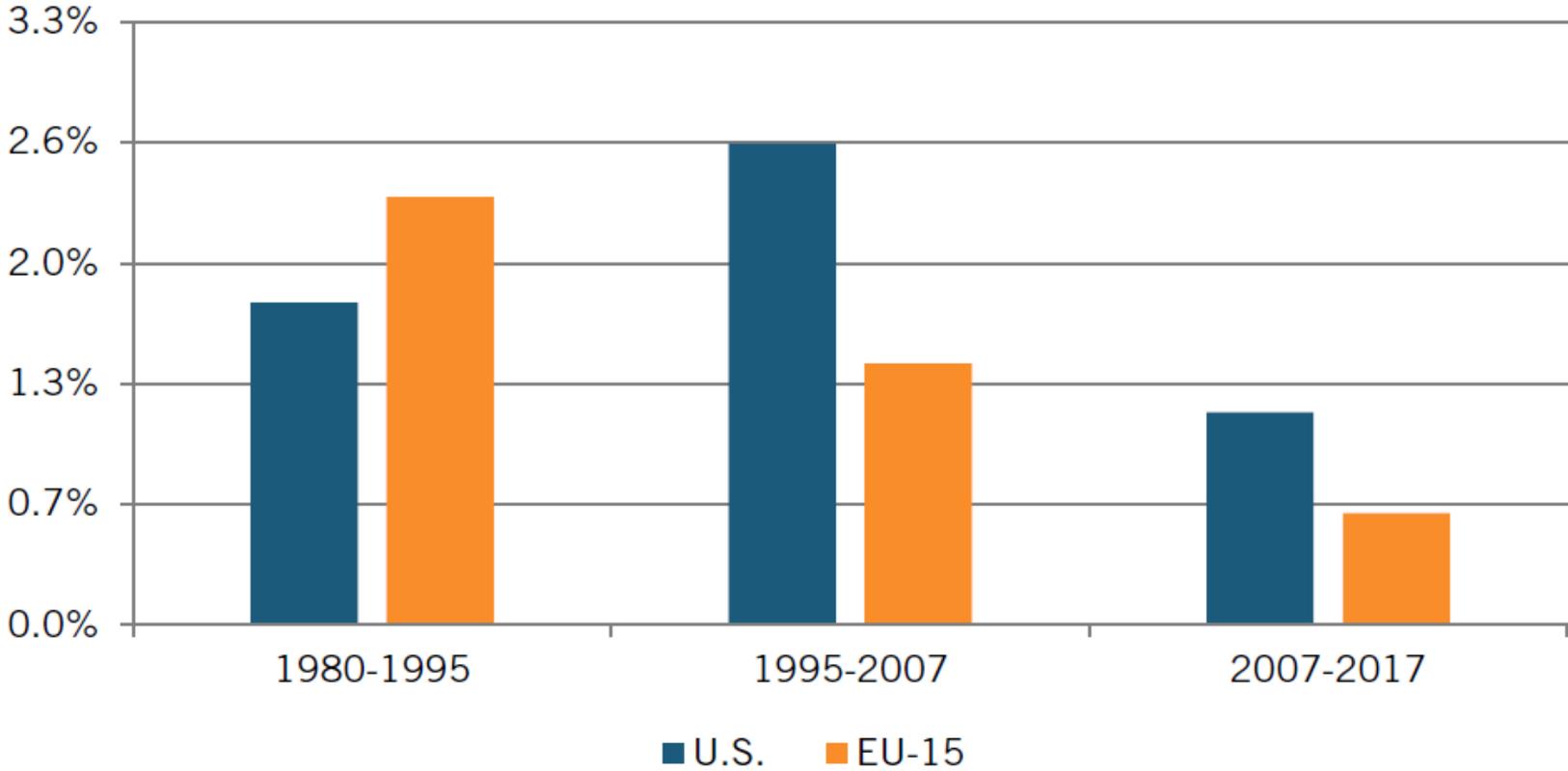
ICT Contribution to Average Annual Growth Rate, 1985-2016



Source, ITIF, "Promoting European Growth, Productivity, and Competitiveness By Taking Advantage of the Next Digital Technology Wave"

Lagging ICT Adoption Key Contributor to Productivity Gap

EU-15 and U.S. Average Annual Labor Productivity Growth, 1980–2017



Source, ITIF, “Promoting European Growth, Productivity, and Competitiveness By Taking Advantage of the Next Digital Technology Wave”

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1) Focus on the Future, Not the Past

- Europe lagged in past ICT waves, including in PCs, smartphones, cloud computing, Internet search, and social media.
- The emergence of new technology eras has led to different firms and regions gaining competitive advantage.
- CAS winners are not predetermined.



2) Focus on Areas of Competitive Advantage

- Past digital technology waves were about “bits.” CAS will be about “bits and atoms.” This plays to the EU’s strengths in engineering, provided it improves software capabilities.
- Build on EU strengths in tech-enabled business services, including accounting and finance, engineering services, supply chain and logistics, environmental compliance, consulting, graphics design, and biometrics.



3) Address Unequal Adoption of Digital Tools

- Wide gaps in adoption and effective use of digital tools between EU firms, industries, and nations.
- Lagging firms (especially SMEs), industries, and nations hold back EU digital progress and productivity.



4) Shift the Strategic Focus of the EU's Digital Policies

- **Foundational:** Addressing potential harms from ICT, ICT companies, or individuals. 
- **Field Clearing:** Reducing barriers and enabling markets. 
- **Proactive:** Opening markets, enabling digital entrants and actively supporting digital transformation. 

5) Build on the EU's Unique Advantages

- EU is more open to launch supporting policies to drive digital transformation: smart grid, smart cities, health IT, E-IDs, etc.
- Take advantage of EU “laboratories of democracy,” particularly in smaller nations, to support and diffuse more bottom-up policy innovation.



6) Win Through Out-Investing the U.S.

- Only 5 nations exceed U.S. government's investment in R&D as a share of GDP: Austria, Denmark, Finland, France, and Germany.
- The Commission should set a target to exceed the U.S. level by 20 percent by 2025. This would require additional €45 billion.



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1) Regulation

- Support national efforts to reform regulation through the “innovation principle.”
- Efforts to “level the playing field” should focus on equivalent protection, not equivalent regulation. Subjecting new digitally based business models to the same regulation as incumbents will limit innovation.
- Preempt individual member digital economy regulations.

Regulation: FinTech

- Fintech refers to businesses that leverage the latest innovations in information technology to radically improve financial services.
- In the first half of 2018, European fintechs received €23 billion of investment, double the €12 billion in U.S., and €14 billion in Asia.



Policy Principles for Fintech

BY ALAN MCQUINN, WEINING GUO, AND DANIEL CASTRO | OCTOBER 2016

Recent technological advances offer new opportunities for financial service providers and the consumers and businesses that use them, improving quality and lowering costs.

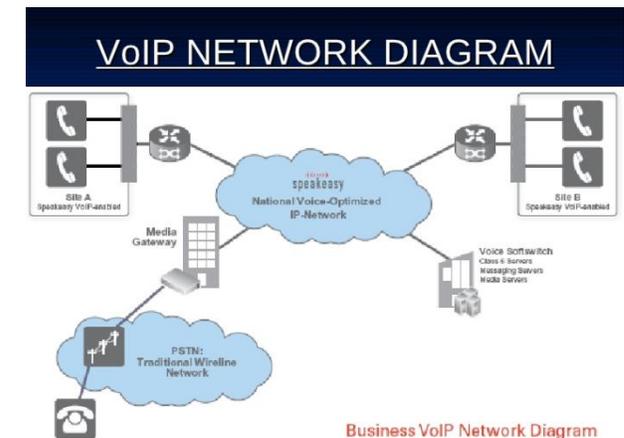
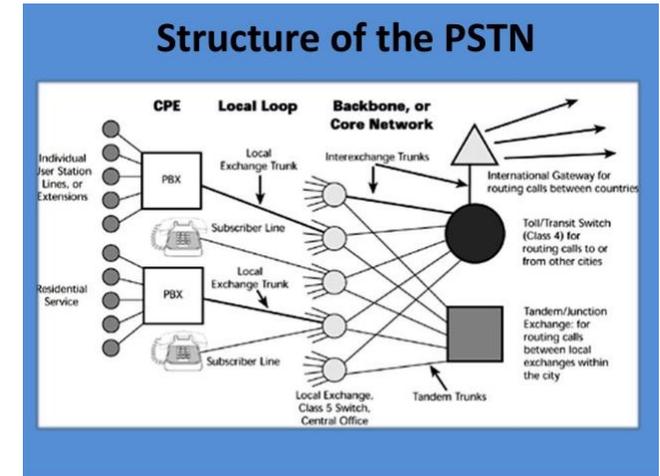
The financial services industry is an information industry, where money is simply a nominal representation of real value (goods or services). Yet, compared with some information industries that reaped disruptive gains from information technology (IT), the financial-services industry has experienced mostly incremental innovation. For example, the creation of the Internet enabled innovators to route voice traffic over networks, changing telephony from an expensive, intermediary-driven system to the efficient global system we have today. The financial services industry is potentially at a similar inflection point, where expensive, dedicated single-purpose networks and systems are giving way to cheaper, general-purpose ones. Collectively referred to as "fintech," the businesses pushing this transformation promise improvements in financial-services industry productivity, greater ease and lower prices for consumers, and greater access for those now underserved by the financial-services sector. These innovations are poised to radically improve how consumers and businesses transfer money and make payments, store value, save and invest, borrow, and insure themselves against risk. But achieving this will require policymakers to actively support fintech transformation.

Fintech, a combination of the words "financial technology," is a somewhat nebulous term that refers to the set of companies focused on using the latest innovations in information technology to improve financial services. These improvements benefit consumers and businesses by creating more convenient, higher quality, and cheaper services. By lowering costs, more consumers can not only save money, but also take advantage of financial

INFORMATION TECHNOLOGY & INNOVATION FOUNDATION | OCTOBER 2016 PAGE 1

The Vision

- “Open banking” where Internet-protocol-based financial transactions become dominant.
- Allow Internet protocols to do for banking what Skype did to telephone, Uber did to taxis, and WhatsApp did to messaging.
- A fundamentally more-efficient, lower-cost, more-globalized, and more-consumer friendly (e.g., mobile-first) model.



The Challenge

- Significant barriers impede fintech innovators, including:
 - Access to incumbent financial institutions.
 - Access to government regulator data.
 - “Bricks and mortar” regulations.
 - Standards and standards processes.
- Incumbent financial institutions have relatively weak incentives for innovation, explaining why most maintain multiple types of legacy and dedicated software, rather than replacing them with integrated, interoperable systems.

Regulatory Principles for FinTech

1. European regulators should embrace regulatory sandboxes for fintechs, and remove duplicative regulations inhibiting growth.
2. The EU should seek to create international harmonization for financial services laws and regulations, e.g. routing and AML.
3. The EU/member states should be early adopters of fintech services.
4. The EU/member states should increase funding for fintech R&D, and focus especially on promoting fintech cybersecurity.

2) Resources for Firms: Data, Research, Skills & Infrastructure

- Every EU member state should appoint a chief digital officer.
- Expand use of financial support instruments, such as innovation vouchers, to stimulate manufacturing digitalization.
- Expand tax credits supporting firms' investments in new plant and capital equipment.
- Support lifelong learning and strong workforce reskilling programs (e.g., Austria, France, Sweden).

3) Culture and Institutions

- Expand support for EU universities to create entrepreneurship education programs and reform university engineering curriculum toward project-based learning and entrepreneurship.
- Establish an EU-wide productivity agency to identify specific policies to spur faster technology-based productivity and to act as a champion stronger productivity policies.
- Create an “innovation dividend” to better socialize economic gains from innovative industries/technologies.

4) Trade

- Give EU Commission authority to approve or reject acquisitions of EU firms from state-capitalist nations.
- Develop provisions to protect data flows within EU trade agreements and hold firms accountable by ensuring that data protection rules flow with the data.
- Establish a digital single market for services.



Join the Global Trade and Innovation Policy Alliance

Boosting Open Economic Growth | Improving Living Standards | Encouraging Technological Innovation



Thank You!

Stephen J. Ezell | sezell@itif.org | [@sjezell](https://twitter.com/sjezell)