

# Global Commerce and Cross Border Data Flows

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# About ITIF

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- One of the world's top science and tech 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, policies, and metrics
  - Science policy related to economic growth
  - Digital technology issues (e.g., e-commerce, e-government, e-health)
  - IT and economic productivity
  - Innovation and trade policy



# ITIF Publication Highlights



# Today's Presentation

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- 1 Digital Trade is Growing
- 2 Keys to Digital Trade Success
- 3 Digital Protectionism is Growing
- 4 What Should Government Do?

# Global Economy Is Increasingly Digitalized

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- Digital economy accounts for 25% of global GDP.
- Half of value created over the next decade will be created digitally.
- Value of cross-border data flows surpassed value of merchandise trade for first time in 2015.

Sources: Accenture, “Digital Disruption: the Growth Multiplier”; McKinsey Global Institute, “Digital globalization: The new era of global flows”

# IT is Driving Rising Share of Services Trade

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- Face-to-face services are now able to be traded either in whole (e.g., banking, higher education, retail) or part (e.g., Uber, Redfin, Airbnb).
- “Second unbundling” of international trade where service tasks in manufacturing are unbundled and traded separately.
- Services exports account for 40% of world trade. The services content is significantly higher for developed countries (46%) than developing countries (33%).

# Many Industries Rely on Cross-Border Data Flows

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- A 9-hour flight from New York to Sao Paulo on an aircraft with two engines can generate 320 terabytes of data.
- This data allows airlines to decrease flight delays, lower costs, and improve safety.



# Many Industries Rely on Cross-Border Data Flows

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- Each day, Rio Tinto sends and receives around 30 gigabytes of laboratory, control system and mining data to and from each of its operations in over 40 countries.
- Rio Tinto uses this data to be more environmentally friendly, reduce costs, and promote safer mining in each of its locations



# Trend Will Speed Up With Emerging Technologies

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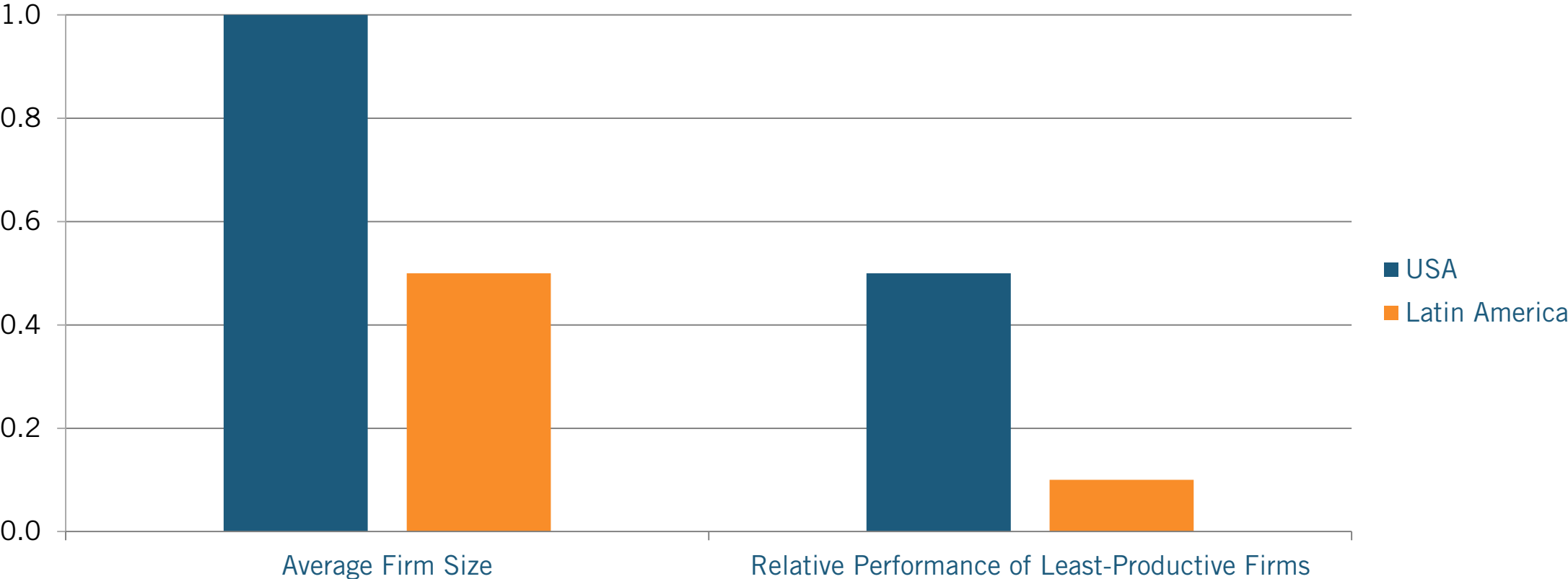
1. Cloud Computing
2. Internet of Things
3. New Production Systems (e.g., Industry 4.0)
  - Generative Design & 3-D Printing
  - Automation: Robotics & Artificial Intelligence
4. FinTech/Block Chain

# Benefits of IT-Enabled Trade

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- Domestic competition
- Economies of scale
- Innovation
- Productivity

# ICT Enables Scale—and Scale Enables Productivity



Source: Grazzi, Pietrobelli, and Szirmai, *Firm Innovation and Productivity in Latin America*, Inter-American Development Bank, 2016; and Hugo Hopenhayn, 2016.




# Today's Presentation

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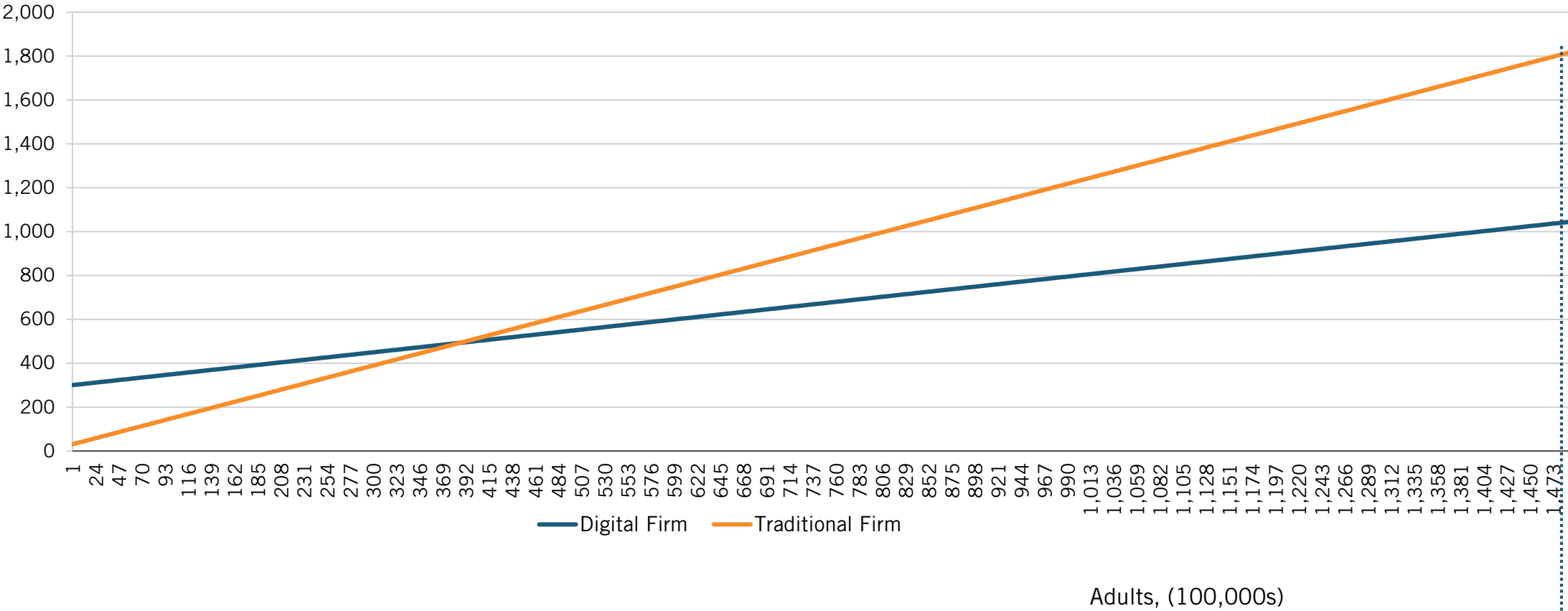
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# Keys for Digital Industry Success

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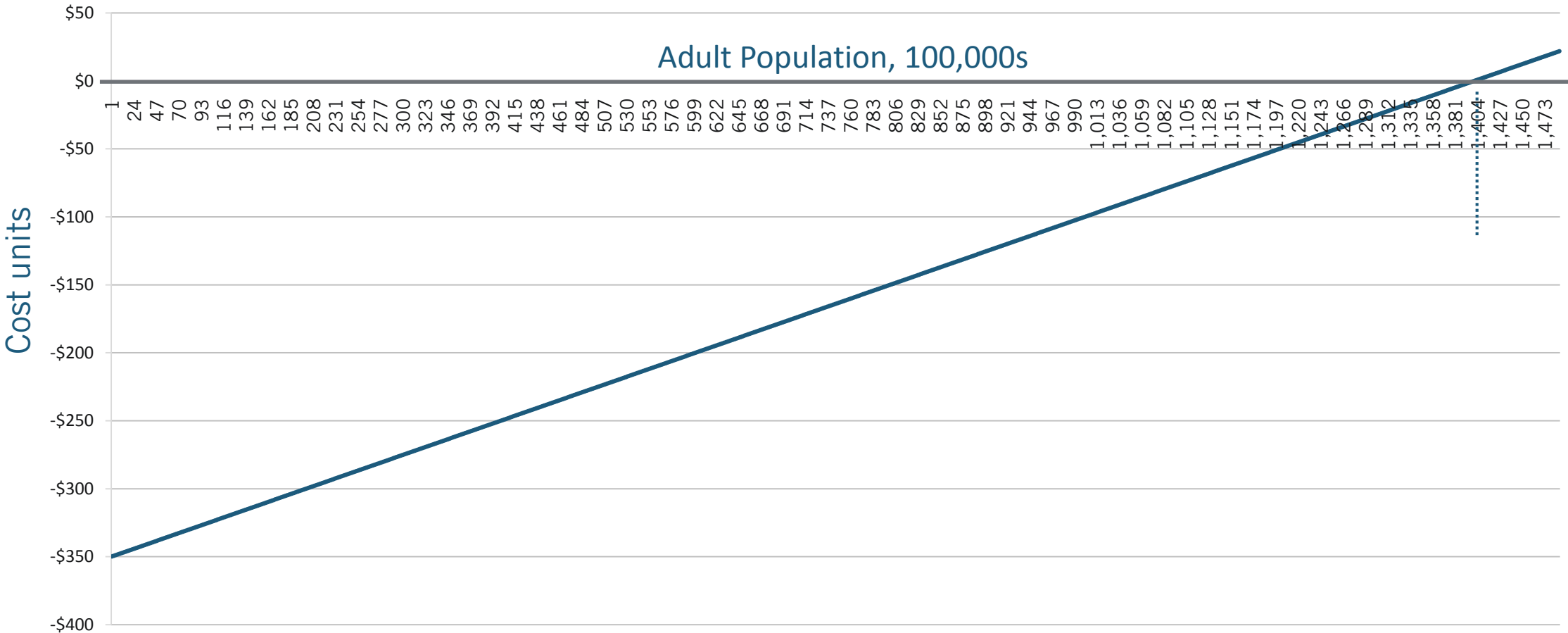
- Large Markets 
- Few or No Policies Raising Firm Costs 
- Few or No Policies Limiting Firm Revenues 

# Firms in Digital Industries Need Larger Markets to Survive



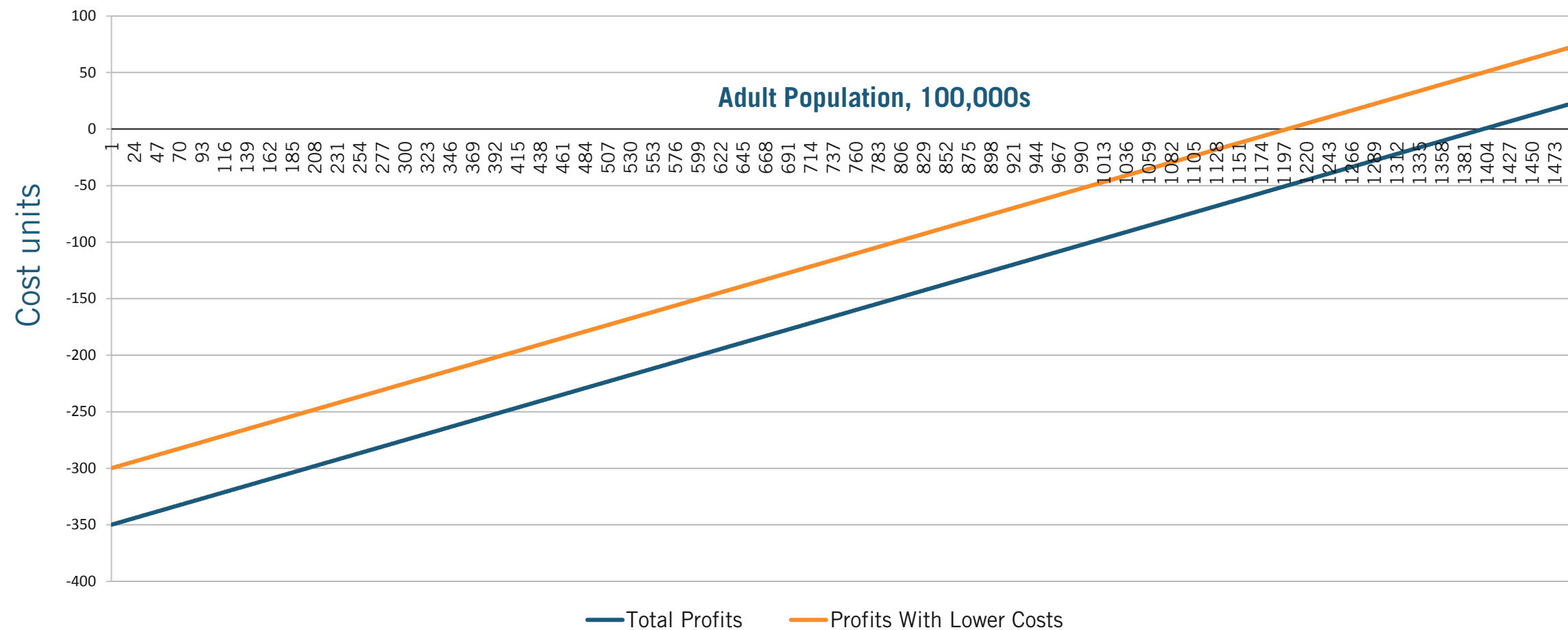
Costs for 2 hypothetical firms with different fixed and marginal costs

# Larger Markets Enable Digital Firm Competitiveness



Model of a firms with 350 units fixed costs, and 0.25 units of profit for unit of sale

# Lower Costs Enable Digital Firm Competitiveness



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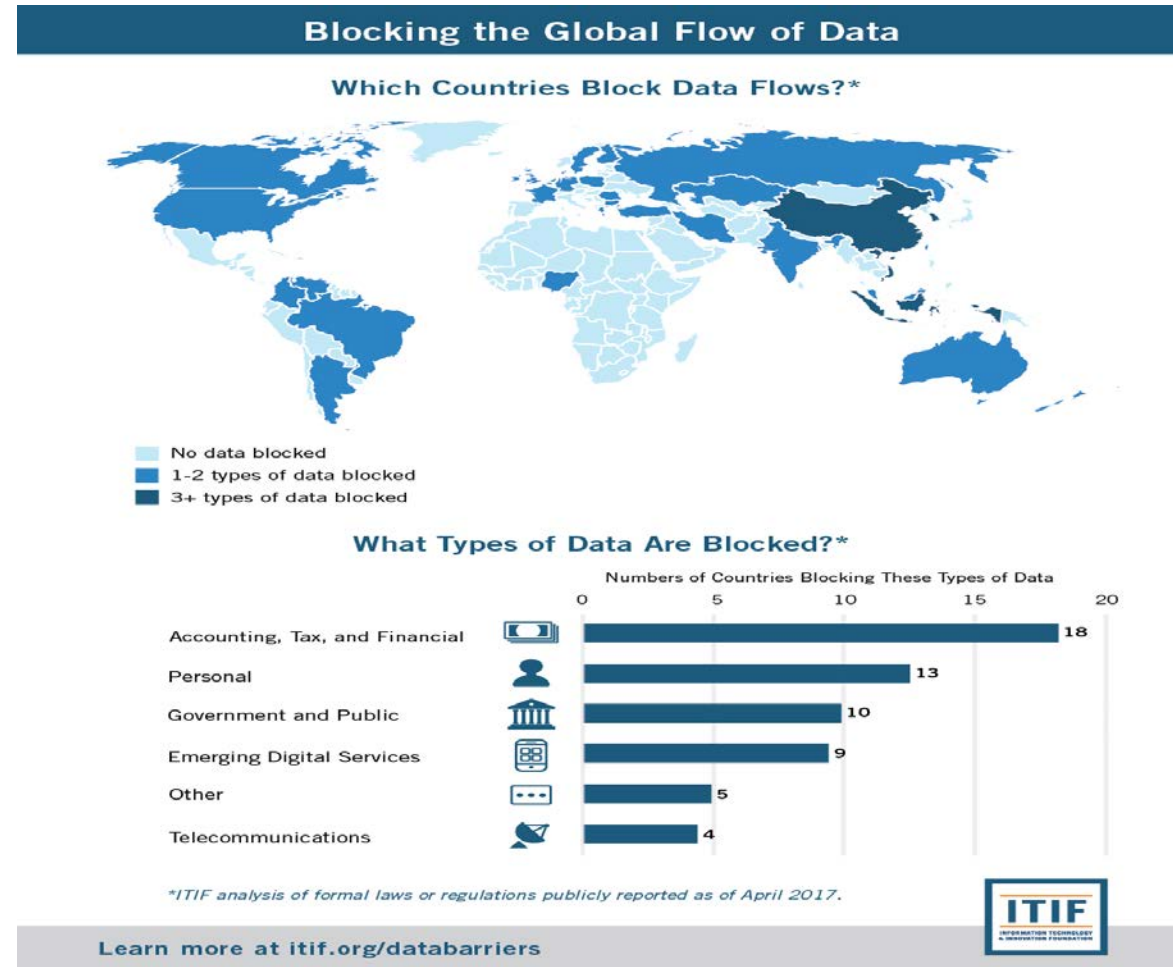
# Obstacles to Increased E-Commerce and Digital Trade

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- Protectionism for domestic incumbents
- Limitations on cross border data flows
- Taxes and regulations that raise IT costs

# Barriers to Data Flows Are Growing

- A growing number of countries are making it more expensive and time consuming, if not illegal, to transfer data overseas.
- Currently: 34 enacted barriers and a range of proposed barriers.
  - Trendline: These measures are spreading rapidly.



# For Example: Data Localization in China

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- World leader in its use of data localization
- Long limited data imports through “Great Firewall of China.”
  - 2006 – e-banking data
  - 2011 – personal financial data
  - 2013 – personal credit data
  - 2014 – health and medical data
  - 2015 – (proposed) insurance data
  - 2016 – online publishing (apps, audio and video platforms, online gaming)
  - 2016 – Counter-terrorism (broad requirements)
  - 2016 – Cybersecurity law (broad requirements)
  - 2016 – Cloud computing restrictions
  - 2017 – Personal and Important Data (broad requirements)

# Main Motivations for Data Localization

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- Privacy and Cybersecurity
- Digital Mercantilism
- Government Access to Data

# Motivation: Privacy and Cybersecurity

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- Many policymakers reflexively and mistakenly believe that data is more private and secure when it is stored within a country's borders.
- Geography  $\neq$  Privacy/Security
  - The privacy and security of data does not depend on which country the information is stored in
  - National privacy and security rules follow the data.

# Motivation: Digital Mercantilism

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- Some countries believe data localization offers a quick way to force high-tech economic activity to take place within their borders.
- Misguided and self-defeating.
  - Data centers don't create many jobs, especially as they become more automated.
  - Increases the cost for all IT service users

# Motivation: Government Access to Data

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- Governments want access to data.
  - E.g. U.S. DOJ vs. Microsoft in Ireland
- Need to Differentiate
  - Non-democratic countries: want access for political/social purposes, such as China and Russia
  - Democratic countries: need a legal process to facilitate legitimate requests to access data for law enforcement and national security purpose

# The Costs of Barriers to Cross-Border Data Flows

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- Firm Competitiveness
  - Companies pay more for data-related services and compliance services.
- Productivity
  - Higher ICT costs for all business users

# The Cost of Barriers to Data Flows are Significant

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- Causes prices for some cloud services in Brazil and the European Union to increase 10.5 to 54 percent.
- Reduces GDP by 0.7 to 1.7 percent in Brazil, China, the European Union, India, Indonesia, Korea, and Vietnam.
- If Brazil had enacted data localization as part of its “Internet Bill of Rights” in 2014, companies would have had to pay an average of 54% more to use cloud services from local cloud providers compared with the lowest worldwide price. Higher prices and displaced domestic demand would lead to consumer welfare losses of \$15 billion.

Sources: Brendan O'Connor, “Quantifying the Cost of Forced Localization” (Leviathan Security Group, June 2015); Matthias Bauer, Hosuk Lee-Makiyama, Erik van der Marel, Bert Verscheide, “The Costs of Data Localisation: Friendly Fire on Economic Recovery” (European Centre for International Political Economy, March 2014); and Nigel Cory, “Cross Border Data Flows: Where Are the Barriers and What Do They Cost” (ITIF, 2017).

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# EU's Digital Single Market is *not* the Model

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- EU policies *raise costs* of digital companies
  - Regulating “over-the-top” apps as telcos
  - “Right to be forgotten”
  - Data localization (e.g., “EU cloud”)
  - Subjecting Internet platforms to special regulation
  - “Right to explanation” for artificial intelligence
  - Rights to access, delete and change data
  - VAT on e-books, but not paper books
- EU policies *reduce revenues* of digital companies
  - General Data Protection Regulation
  - Geo-blocking
  - Strong net neutrality / limitations on zero rating

# Higher ICT Costs Mean Less ICT Use




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- For every 1 percent drop in price in ICT products, there is a 1.5 percent increase in demand.

- *(Gurbaxani, 2003)*

- Limit or Eliminate:
  - ICT Tariffs and taxes
  - Data center and data localization requirements
  - Local content requirements
  - Procurement preferences for domestic companies

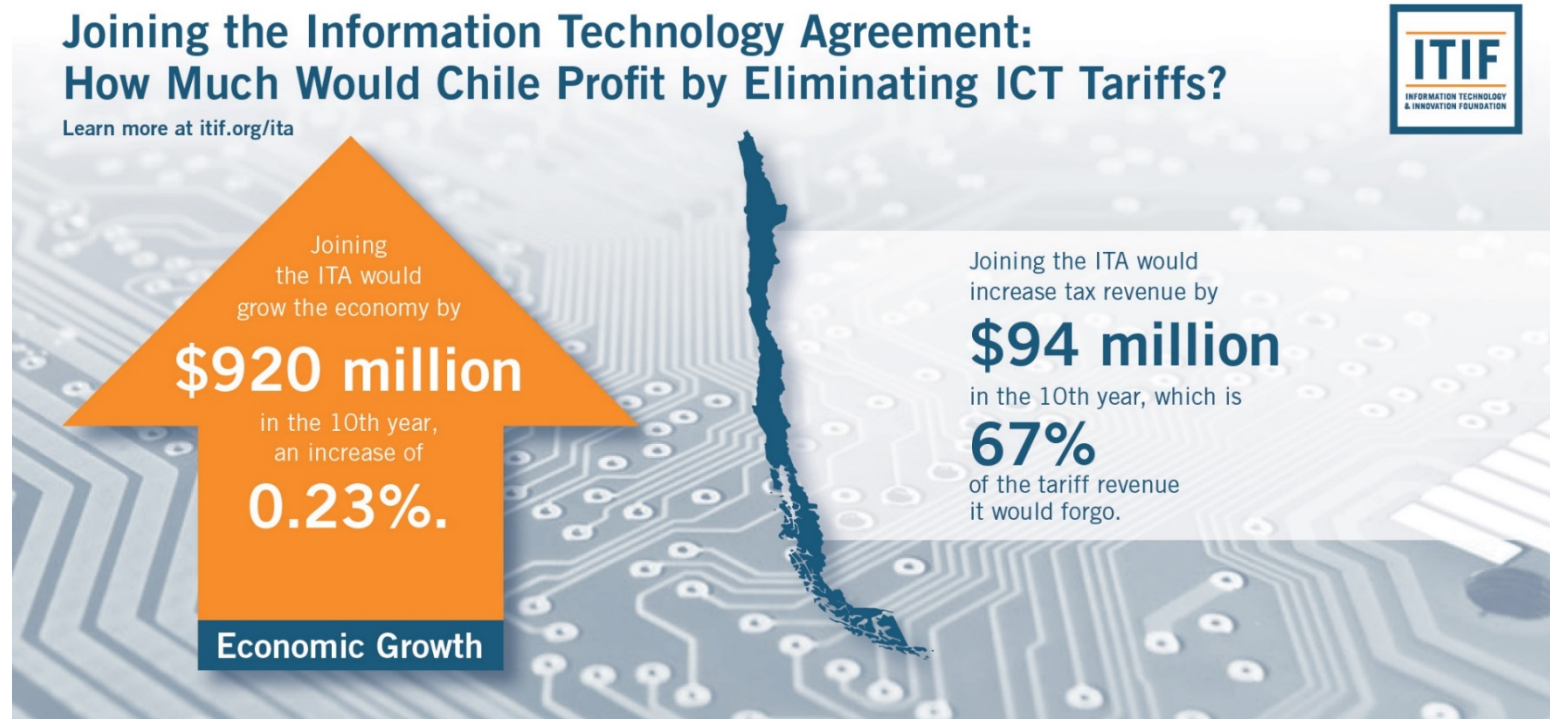
# Countries/Regions Differ in Enabling Digital Success

		United States	China	EU	Brazil
Large Market		✓ ✓ ✓	✓ ✓ ✓	✗	✓
Few Policies To Raise Costs		✓ ✓ ✓	✓ ✓	✗	✗
Few Policies To Reduce Revenue		✓ ✓ ✓	✓ ✓ ✓	✗	?

# Steps for More Robust Digital Trade (I)

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- ✓ Reduce tariffs on ICT imports (Join the Information Technology Agreement).



## Steps for More Robust Digital Trade (II)

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- ✓ Ban limitations on cross border data flows and data center localization requirements.
- ✓ Ban customs duties on cross-border data transmissions.
- ✓ Exempt digital goods imports from taxes.
- ✓ Prohibit the requirement of the transfer of software source code and encryption as a condition market access.

## Steps for More Robust Digital Trade (III)

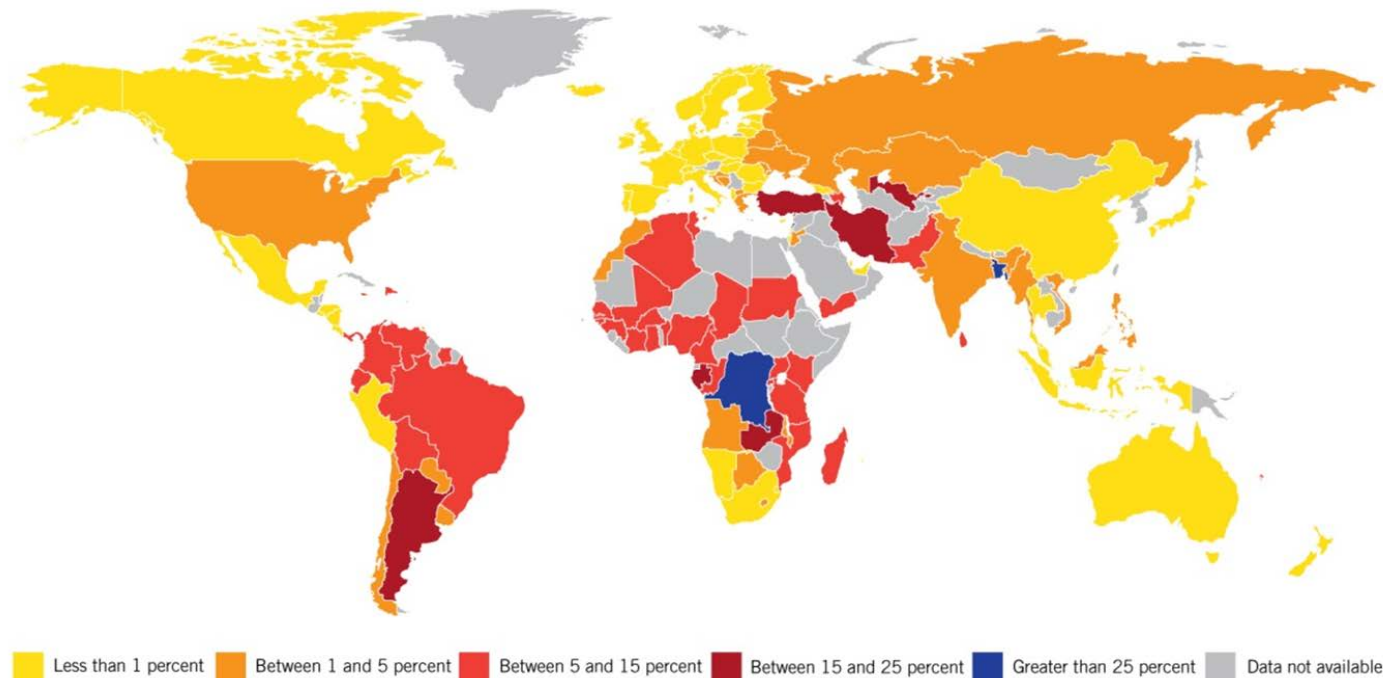
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- ✓ Enact a commercially meaningful de-minimis threshold for low-value e-commerce packages—exempt packages worth less than USD \$200 from taxes/duties.
- ✓ As part of improved trade facilitation, simplify returns processes, certificates of origin and duty drawback procedures, and streamline VAT collection on trade.
- ✓ Create appropriate intermediary liability safe harbors.
- ✓ Legal recognition of digital signatures and financial payment services.
- ✓ Allow inward investments in all ICT industries.

# Steps for Domestic Digital Policy

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- ✓ Eliminate ICT-specific taxes.



Source: Robert D. Atkinson and Ben Miller, “Ranking 125 Nations by Taxes and Tariffs on ICT Goods and Services,” (Information Technology and Innovation Foundation, October 2014), Figure 2, Appendix B.

# Steps for Domestic Digital Policy

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- ✓ Don't subject OTT providers to telecom regulation.
- ✓ Embrace light touch, opt- out privacy rules.
- ✓ Focus on 5G, not gigabit networks.

# Make Government a Force for Digital Innovation (I)

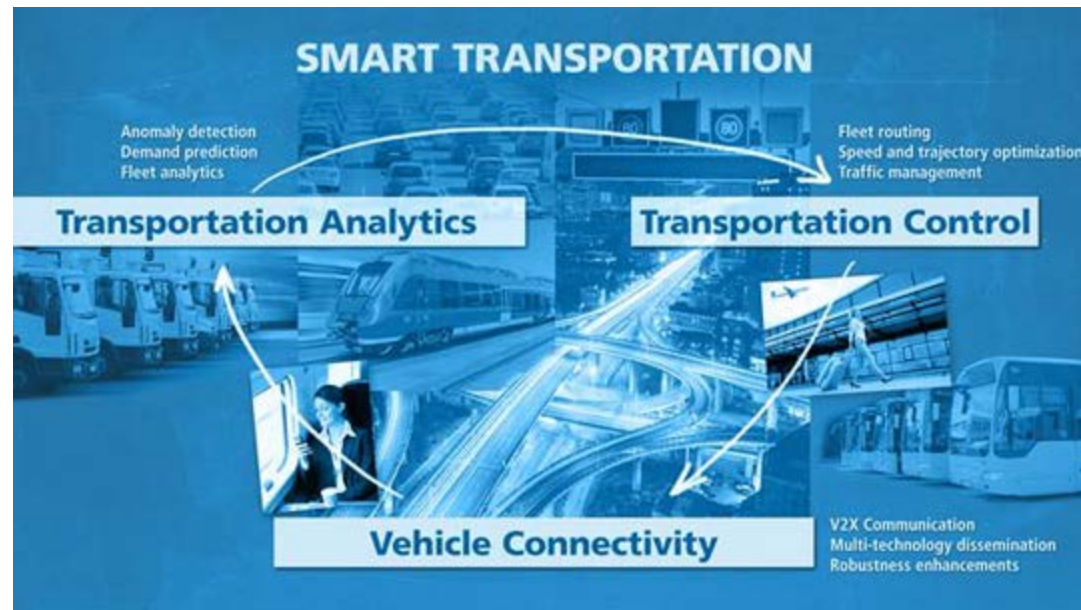
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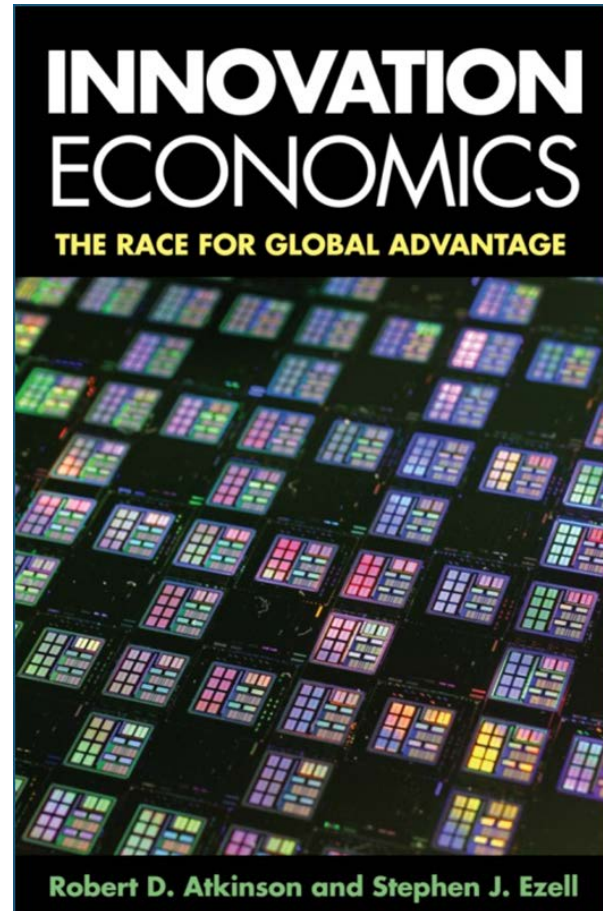
- ✓ Have access to an innovation “Incubator”. (e.g., US “18F” or UK Government Digital Services).
- ✓ Put innovation in the strategic plans/agendas of all agencies. (e.g., Dept. Transportation & ITS; Dept. Energy & Smart Grids/Meters).
- ✓ Appoint a Chief Innovation Officer (CIO) for every agency.
- ✓ Establish an “Office of Innovation Review” within the government. (Mission to screen the impact of laws/regulations on innovation).

# Make Government a Force for Digital Innovation (II)

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- Industry 4.0
- Agriculture 4.0
- Mining 4.0
- Electricity 4.0
- Education 4.0
- Financial Services 4.0
- Transportation 4.0





Yale University Press,  
2013

# Obriagdo!

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