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

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

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

Disruptors vs. Incumbents

Music
Books/Newspapers
Retail
Advertising
Cars/Taxis
Education
Health Care
Banking
Manufacturing
Insurance

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.”
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.”
  – 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
Hype: Digital Revolution Will Lead to Massive Job Losses

- “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 Airnbnb

**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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Broader Digital Technology Policies

- 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

Average EU Firm Size is Small and Shrinking

![Bar chart showing average EU firm size and shrinking from 19.4 to 20.5 in 2005 to 2013.]

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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