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Innovation Economics: The Race for Global Advantage

Presentation to: BioPharma Research Council

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

- Innovation “verticals”: energy, life sciences, telecom, manufacturing, and Internet and IT transformation
- Innovation “horizontals”: trade, tax, talent, and tech policy
- “Innovation economics” as an alternative to mainstream economics
Today’s Presentation

1. The U.S./Global Innovation Landscape
2. Life Sciences Case Study
3. Revitalizing American Innovation
Innovation Economics: The Race for Global Advantage
U.S. Economy Significantly Underperforming

- Median household incomes stagnant since 1983
- Labor force participation rate lowest since 1979
- Lost 1/3rd manufacturing jobs last decade
- $7 trillion trade deficit over past decade ($-100B ATP)
- Average national debt per taxpayer: $150K
The Study:
Compares innovation-based competitiveness of 44 nations and regions.

16 indicators:
Including corporate and government R&D, scientists and engineers, new firms, corp. tax, productivity growth and others.
Overall Score for Global Competitiveness and Innovation

2011
But U.S. Second to Last at Improving Innovation Capacity

Source: ITIF, The Atlantic Century II
Companies Have Gone From Shopping the States...
To Shopping the World
With the U.S. Increasingly Losing Locational Decisions
U.S. Less Attractive Location for Innovation & Investment

- Stagnant science and research funding
- Highest corporate tax rate in OECD
- 27th most generous (& unstable) R&D tax credit
- Faltering education system
- Lagging high-skill immigration policy
Today’s Presentation

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U.S. Competitiveness in Biomedical Research
U.S. Leadership Today is Under Threat

Competitors ramping up efforts with intent to stake their own claims on global leadership:

- China spending $308B over next 5y (4x U.S. as share GDP); now leads world in DNA sequencing capacity.
- Korea’s government provides 7 times more funding for pharmaceutical industry-performed research than does the United States as a share of GDP.
NIH Funding Trajectory – Constant dollars

Figure 1—NIH appropriation, constant 1995 dollars (millions), 1995–2013
NIH Grant Applicant Success Rates

Figure 3—NIH R01-equivalent application success rates, 1963–2011
Government Funded R&D for Medical Science

Figure 4—Government-funded R&D for medical science performed by the academic and non-profit sectors (as shares of GDP), 1995–2009
Country Shares of Global Pharmaceutical Output

Figure 6—Countries shares of global pharmaceutical industry output, 1995–2010

- Europe
- United States
- China
- Japan
- India
Changes in Pharmaceutical Trade Balances

Figure 7—Percentage point changes in trade balances in pharmaceutical products (as shares of GDP), 2000–2010
Today’s Presentation

1. The U.S. Global Innovation Landscape
2. Life Sciences Case Study
3. Revitalizing American Innovation
1. Embrace “Innovation Economics”

“Productivity growth is the single most important factor to our economic well-being. But it is not a policy issue, because we are not going to do anything about it.”

- The central goal of economic policy should be to spur higher productivity and greater innovation.
- Science, technology, innovation, and entrepreneurship should be at the heart of economic policymaking.

Paul Krugman

Joseph Schumpeter
- Boosting National Innovation Competitiveness

2. Strengthen the Heart of our Economy
3. Get the “4 Ts” Right

- **Tech**

- **Tax**

- **Talent**

- **Trade**
### Design the Global System to Maximize Innovation

#### 4. Compete based on “Good” Innovation Policies

<table>
<thead>
<tr>
<th>Country</th>
<th>World</th>
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<tbody>
<tr>
<td>Wins</td>
<td>Wins</td>
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<tr>
<td>“Good”</td>
<td>(e.g. R&amp;D Support)</td>
</tr>
<tr>
<td>“Self-destructive”</td>
<td>(e.g. Limiting High-Skill Immigration)</td>
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Innovation and Competitiveness Shouldn’t Be Partisan

5. Work Together
Thank You

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www.globalinnovationrace.com
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