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# Benchmarking Leading Countries' Innovation Policies

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# What is a National Innovation Strategy?

- *“Those elements of science, technology, and economic policy that explicitly aim at promoting the development, spread, and efficient use of new products, processes, and services.”*
- A well-conceived, strategic approach that proactively anticipates and articulates the interactions among policies in science and technology, R&D, education, workforce training, immigration, tax, trade, intellectual property, and digital infrastructure investments in driving innovation to create social and economic welfare.
- Intentionally links science, technology, and innovation with economic (and employment) growth.
- Pays particular attention to supporting the innovation capabilities of institutions, including businesses and government agencies, and to promoting the creation and diffusion of technology throughout society.

# Why Do Nations Need an Innovation Strategy?

1. Because technological innovation drives long-run economic growth.
  - Up to 90 percent of per-capita income growth stems from innovation.
  - The use of information technology has accounted for over half of U.S. productivity growth over the last 15 years.

# Why Do Nations Need an Innovation Strategy?

1. Because technological innovation drives long-run economic growth.
2. Because addressing complex and systemic challenges—such as achieving affordable health care, combating global climate change, achieving sustainable energy production, deploying digital infrastructure, etc.—requires coordinated strategies leveraging the resources of firms, government, academia.

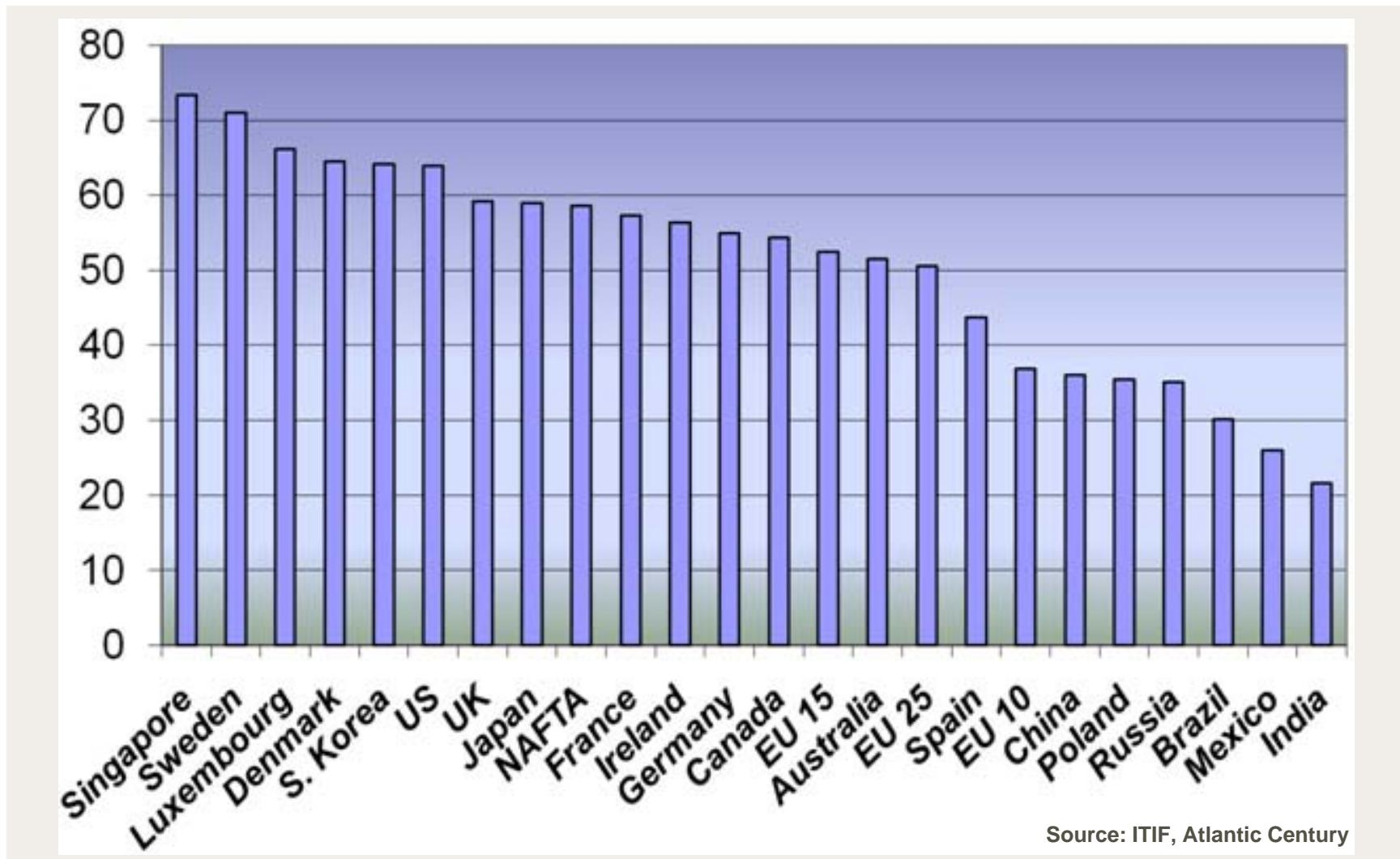
# Why Do Nations Need an Innovation Strategy?

1. Because technological innovation drives long-run economic growth.
2. Need to address complex and systemic challenges.
3. Because, in contrast to what the conventional neo-classical economic doctrine holds, markets alone will produce societally sub-optimal levels of innovation. Systemic market failures around innovation include:
  - High levels of risk
  - Time horizons
  - System interdependencies (e.g. chicken or egg)
  - Externalities (e.g. spillovers from research)
    - Private RoR from R&D is 7%; but the RoR to society from R&D is 28%
  - Need for technology platforms

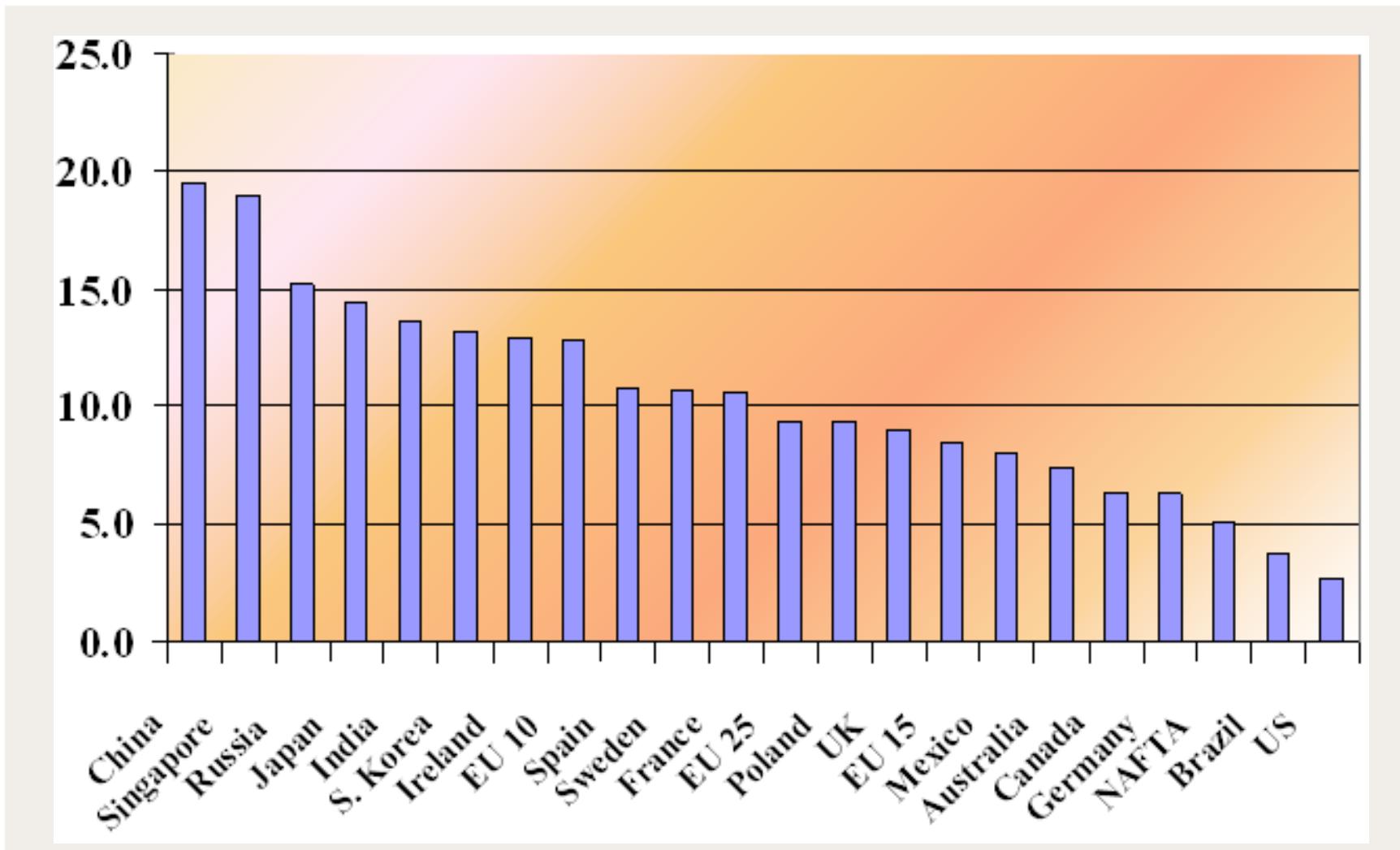
# Why Do Nations Need an Innovation Strategy?

1. Because technological innovation drives long-run economic growth.
2. Difficulty in addressing complex and systemic challenges.
3. Markets alone do not produce societally optimal levels of innovation.
4. Because the stakes have been raised.
  - Globalization means that more of an economy's economic activity is traded and at risk of foreign competition.
  - Other countries are conscientiously targeting the highest-value added sectors of economic activity.
  - Two dozen countries now have formal innovation strategies.

# U.S. No Longer World Leader in Innovation Capacity



# Dead Last in Enhancing Innovation Capacity over Decade

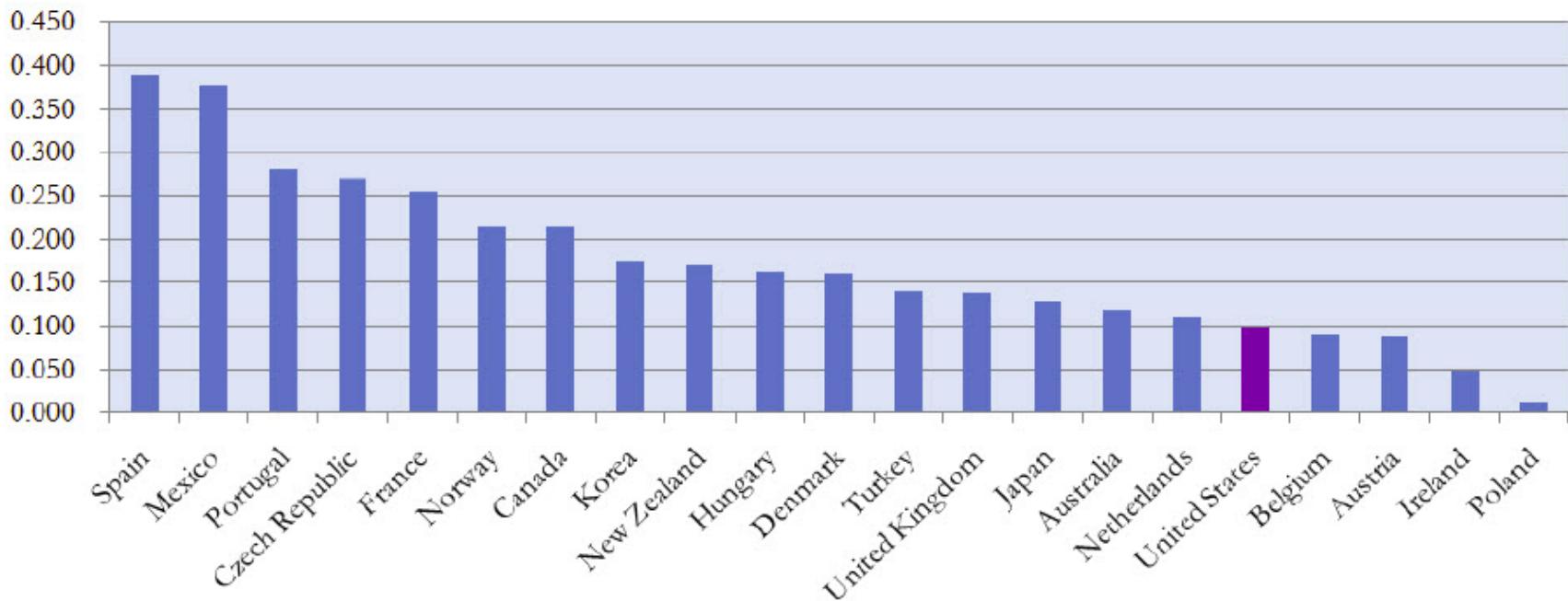


Source: ITIF, Atlantic Century

# Falling Behind on R&D Tax Credit Generosity

- The United States was one of the first nations to offer an R&D tax credit.
- The U.S. has slipped to 17<sup>th</sup> in R&D tax credit generosity in OECD.
  - Other countries innovating with flat tax credits.
  - Lack of permanency of R&D tax credit stymies innovation in U.S.

FIGURE 1: R&D TAX GENEROSITY IN OECD NATIONS



# Comparing Countries' National Innovation Strategies

August 2009

Country	Existence of National Innovation Foundation (s) or Agency	Definitively Articulated National Innovation Strategy/Policy	Stated Commitment to Lead the World in Transitioning to a Digital Economy	Implemented a National Broadband Strategy
Denmark	Yes	Yes	Yes	Yes
Finland	Yes	Yes	Yes	Yes
Ireland	Yes	Yes	Yes	Yes
Japan	Yes	Yes	Yes	Yes
The Netherlands	Yes	Yes	No	Currently Being Written
Portugal	Yes	Yes	No	Yes
Singapore	Yes	Yes	Yes	Yes
South Korea	Yes	Yes	Yes	Yes
Sweden	Yes	Yes	Yes	Yes
United Kingdom	Yes	Yes	No	Yes
United States	NO	NO	NO	Currently Being Written

# How Countries Developed Their Innovation Strategies

1. Recognize the need to approach innovation systemically.
  - Finland's National Innovation Strategy: "*Piecemeal policy measures will not suffice in ensuring a pioneering position in innovation activity, and thus growth in national productivity and competitive ability.*"
2. Set a vision for action with clearly articulated goals.
  - It is unlikely a country will lead the world in something—whether in putting a man on the moon, in transitioning to a digital economy, or being innovation pacesetters—without publicly announcing such goals.
3. Make necessary institutional reforms.
  - Creating an institution whose specific purpose is promoting innovation.
  - Giving innovation a home – clusters, Strategic Centers for Technology.
  - Implementing educational reforms.

# Why the U.S. Hasn't Had a National Innovation Strategy

## 1. We don't need to.

- We've always been ahead and we always will be. We have unlimited resources, better entrepreneurs, more technology, etc.
- Besides, nations don't compete, only companies do.

## 2. Private markets do just fine for us by themselves alone.

- NO! IBM, Google, Oracle, Akamai, the Internet (ARPANET), Mosaic web browser, others all arose directly from government research funds or grants.
- And if you don't have those, you don't get the Amazons, e-Bays, etc.

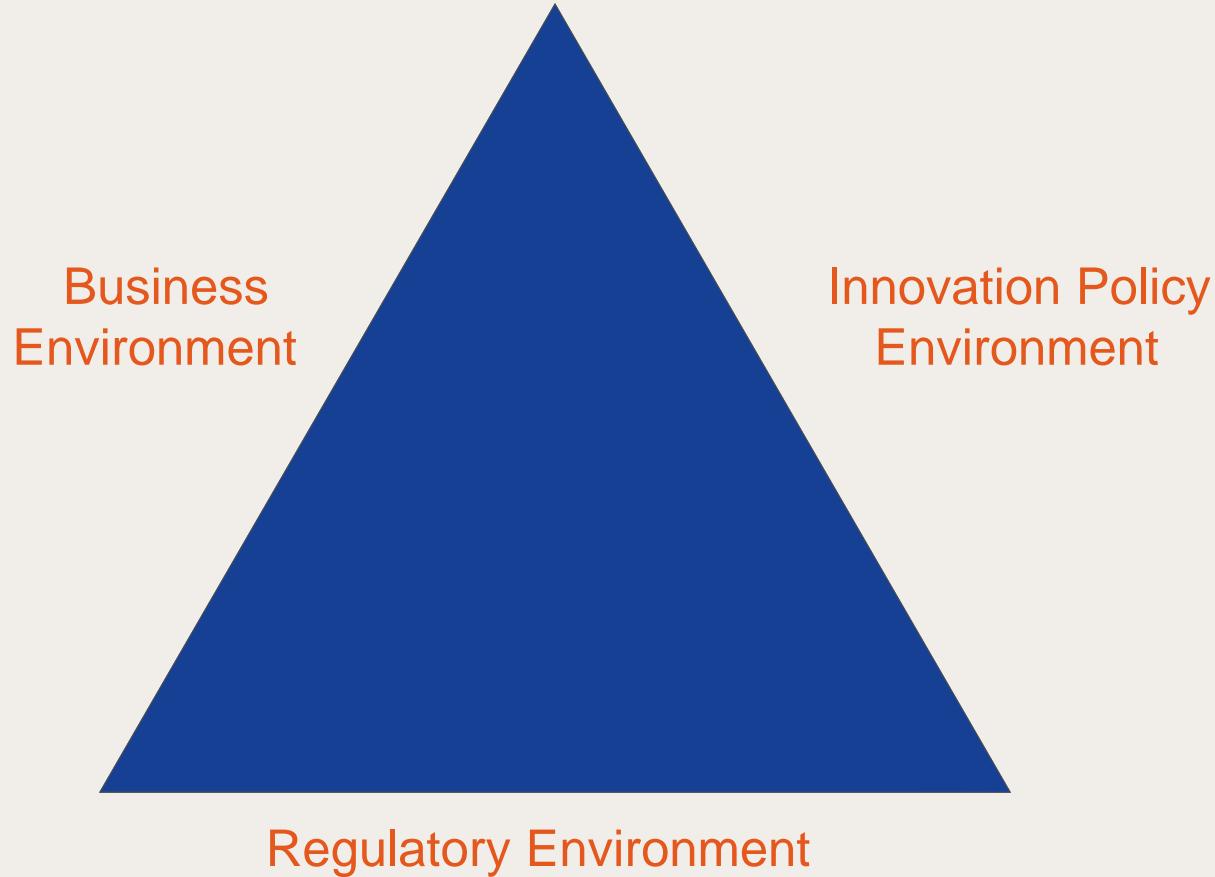
## 3. Dominant economic doctrines say there's no role for government

- Neo-classical and neo-Keynsian vs. innovation economics.
- Alan Blinder: "Nothing—repeat, nothing—that economists know about growth gives us a recipe for adding a percentage point or more to the nation's growth rate on a sustained basis. Much as we might wish otherwise, it just isn't so."
- Manna from Heaven

## 4. Other countries cited as examples don't count.

- Such small, homogenous countries...Finland, Singapore, Holland.
- But China, India, and the UK all have innovation strategies, and the latter 2 agencies.

# Innovation Requires Getting a 3-Sided Triangle Correct



# Business Environment



1. Vibrant capital markets.
2. Churn and change are accepted, even embraced.
3. High level of entrepreneurship.
4. Cooperation and collaboration is part of the culture.
5. High levels of university licensing and patenting.
6. Strong IT adoption, especially among business.

# Regulatory Environment



1. Pro-innovation tax system.
2. Competitive and open trade regime.
3. Ease of starting a business.
4. Transparency and rule of law.
5. Support for competitive product and labor markets.
6. Limited regulations on the digital economy.
7. Government procurements based on performance standards.

# What Would A National Innovation Strategy Do?

(Innovation Policy Environment) 

- It would of course help increase the supply of research and researchers, but it would go well beyond this conventional set of prescriptions, by:
  - Channeling R&D into specific technology or industry research areas.
  - Surveying the globe to identify nascent technologies.
  - Building technology “roadmaps” in key industries.
  - Funding sector-based industry-university-government research partnerships.
  - Creating new knowledge pertaining to the methods, processes, and techniques of innovation.
  - Transferring knowledge from academia and government to the private sector.
  - Encouraging private-sector technology adoption.
  - Supporting regional industry technology clusters.
  - Developing national innovation metrics.
  - Championing innovation in the public sector.
  - Reshaping the corporate tax code to spur innovation and investment in IT.
  - Reformulating trade policy around an innovation agenda.

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# “President Obama Innovation Strategy” – September 2009

A credible first step, but *much* remains to be done:

- Innovation needs to have an institutional home in the federal government to increase the likelihood of success and survival across Administrations. Whether a:
  - National Innovation Foundation
  - Office of Innovation Policy in OMB (an OIRA for innovation)
- An “innovation factor supply” policy approach is not enough; innovation policy is more than funding NSF and securing more funding for STEM.
- Needs a focus on innovation in sectors (e.g., transportation, health care, housing, education), functions (e.g., mobile commerce, digital identification), and technologies (e.g., robotics, machine vision, expert systems, voice recognition, biotechnology).
- Needs to include institutional analytic capability to measure and evaluate output of innovative policies and activities over time.
- Needs to include formal mechanisms to benchmark U.S. innovation policy against that of other countries and incorporate lessons there from.
- Needs full, bipartisan Congressional support and funding for initiatives herein.



# Thank you!

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