

Best Practices in Commercialization and Technology Transfer

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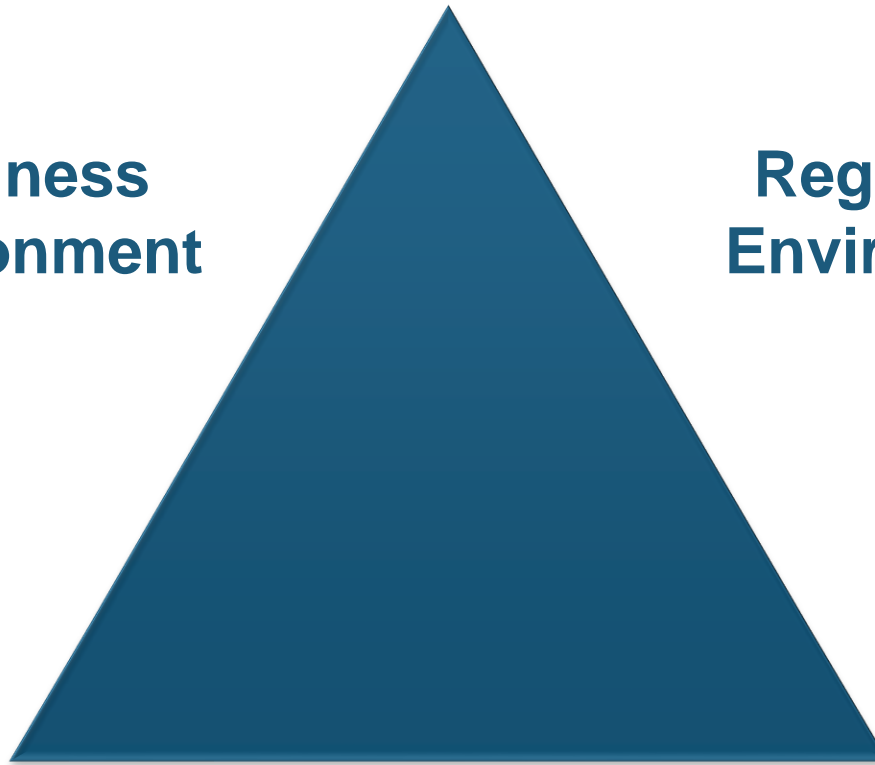
About ITIF

- One of the world's top science and technology 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 and trade policy
 - Innovation processes, policy, and metrics
 - Science policy related to economic growth
 - IT and economic productivity

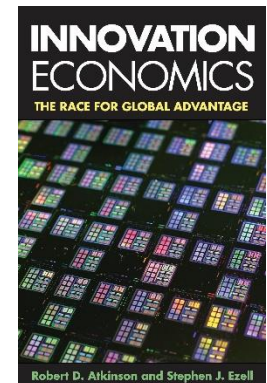
National Success at Innovation Means Getting “The Innovation Triangle” Right

**Business
Environment**

**Regulatory
Environment**



**Innovation Policy
Environment**



Business Environment



1. Vibrant capital markets.
2. Strong management/leadership skills.
3. High levels of entrepreneurship.
4. Strong ICT adoption, especially among business.
5. Embrace dynamic churn and change (e.g., creative destruction).

Regulatory Environment



1. Transparency and the rule of law.
2. Protection of intellectual property (and other property rights).
3. Ease of starting a business.
4. Competitive and open trade regime, including openness to FDI.
5. Pro-competition anti-trust and regulatory policies.

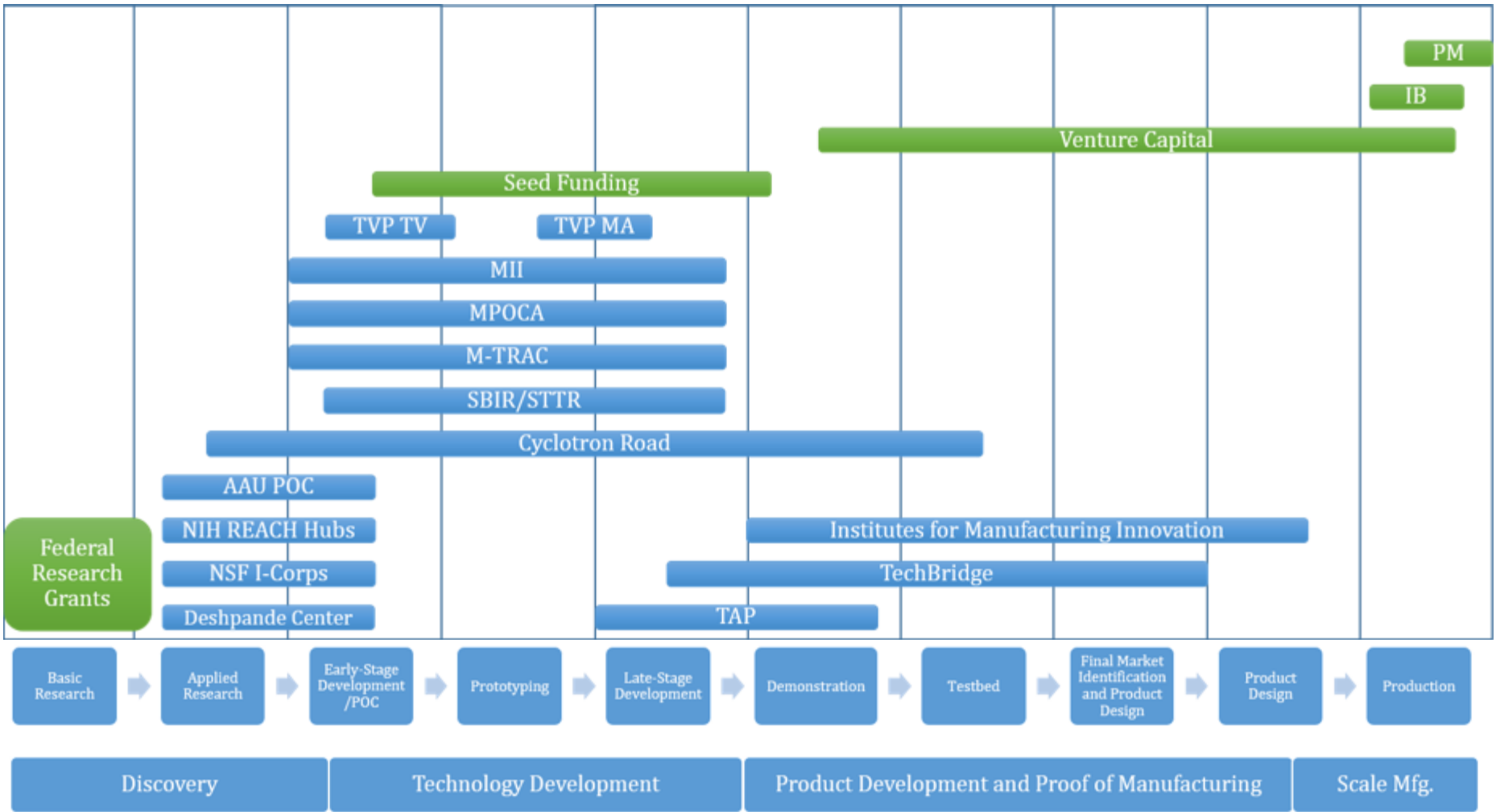
Innovation/Technology Policy Environment



1. Robust public and private sector funding for scientific research.
2. Incentives to invest in R&D, capital equipment, workforce training.
3. Strong STEM education system.
4. Active policies to spur digital transformation.
5. Effective policies and programs to support technology transfer/commercialization from universities and research institutions to the private sector.

Technology transfer and commercialization is what tangibly makes the world a better place, improves standards of living, and grows national economies.

Charting The U.S. Innovation Continuum



Source: MIT, Summary of Federal, State, University, and Private Programs for Supporting Emerging Technologies

Broad STI Policy Initiatives that Can Bolster Technology Transfer and Commercialization

- ✓ Develop PPP platforms/communities that provide the services, facilities, and networks necessary for innovators and entrepreneurs to de-risk and commercialize new technology.
 - E.g., U.S. National Network for Manufacturing Innovation
 - E.g., MIT's "Innovation Orchards"
- ✓ Create "mentorship" programs for private investigators that teaches grantees to identify valuable product opportunities that can emerge from academic research. (E.g. NSF iCorps)
 - Teach emerging innovation methods/techniques (E.g., Ten Types of Innovation, Business Model Generation)



Life-Sciences Specific Technology Transfer and Commercialization Programs

- ✓ **NIH Centers for Accelerated Innovations (NCAI) and Research Evaluation and Commercialization Hubs (REACH). Goals:**
 - To accelerate translation of scientific discovery into commercial products that improve health for patients.
 - To “foster [PI] research applications in a manner consistent with business case development.”
 - To develop best practices in translating academic innovations into new drugs, devices, and diagnostics.

Life-Sciences Specific Technology Transfer and Commercialization Programs

- ✓ National Center for Advancing Translational Sciences (NCATS)
 - Focuses on turning observations in the laboratory into interventions that improve public and individual health.
 - NCATS studies translation on a system-wide level as a scientific and operational problem, developing and supporting innovative collaborations across traditionally separate scientific disciplines and organizations.
 - Programs such as “Discovering New Therapeutic Uses for Existing Molecules” and “Rare Diseases Clinical Research Network.”

Source: NCATS, *Transforming Translational Research*, <https://ncats.nih.gov/files/NCATS-factsheet.pdf>.

Funding Technology Transfer and Commercialization

- ✓ Allocate a share of national R&D funding directed specifically to promoting technology transfer and commercialization.
- ✓ Allocate a share of R&D funding explicitly to small businesses, E.g. U.S. Small Business Innovation Research (SBIR) program.
- ✓ Engage entities such as “Business Partners” focused on creating private equity markets for developing countries.
- ✓ Introduce “innovation vouchers” for small businesses, redeemable at universities or research institutions.



The University Role in Tech Transfer

Today, the best university technology offices in the world recognize:

- Universities' technology commercialization programs are a *critical differentiator in attracting students and faculty talent.*
- Incentives and leadership are vital to changing cultures.
- It's about *impact* and *outcomes*; not about licensing *income*.



Reforming University-Related Policies to Spur Technology Transfer and Commercialization

- ✓ Allocate R&D funding to universities, in part, based on performance and ability to attract industry investment.
- ✓ Increase *permeability*: Take faculty members' commercial experiences into account in tenure decisions; allow faculty to suspend tenure to pursue commercialization opportunities.
- ✓ Give students rights to the intellectual property they invent.
- ✓ Support the development of university incubators/accelerators.
- ✓ Develop university entrepreneurship rankings.
- ✓ Create entirely new education institutions (e.g., Olin College).

Reinventing University Roles in a Knowledge Economy

INNOVATION U 2.0

Reinventing
University Roles in a
Knowledge Economy



Louis G. Tornatzky, PhD
Elaine C. Rideout, PhD

- Arizona State University
- Brigham Young University
- California Institute of Technology
- Carnegie Mellon University
- University of Florida
- Georgia Institute of Technology
- Mass. Institute of Technology
- North Carolina University
- Purdue University
- Stanford University
- University of Utah

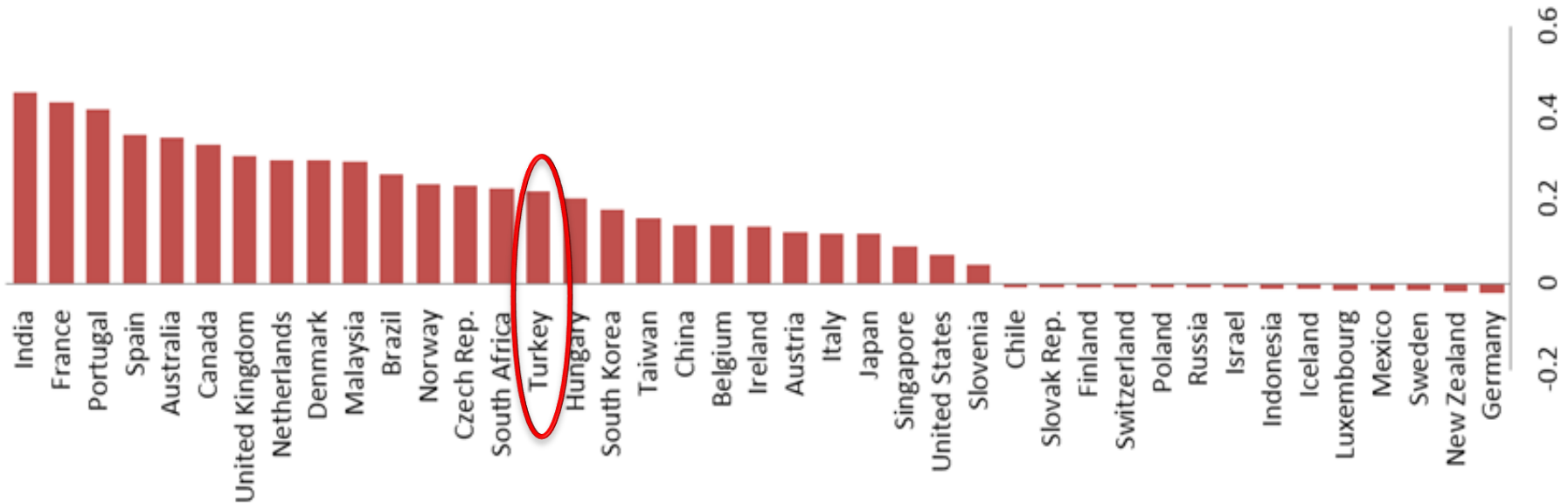
Source: *Innovation U 2.0 Reinventing University Roles in a Knowledge Economy*, <http://ssti.org/report-archive/innovationu20.pdf>

Leveraging Tax Policy to Spur Technology Transfer and Commercialization Activities

- ✓ Generous R&D tax credits (e.g., France, India).
- ✓ Robust collaborative R&D tax credits (Canada, Korea, Spain).

International R&D Tax Credit Generosity

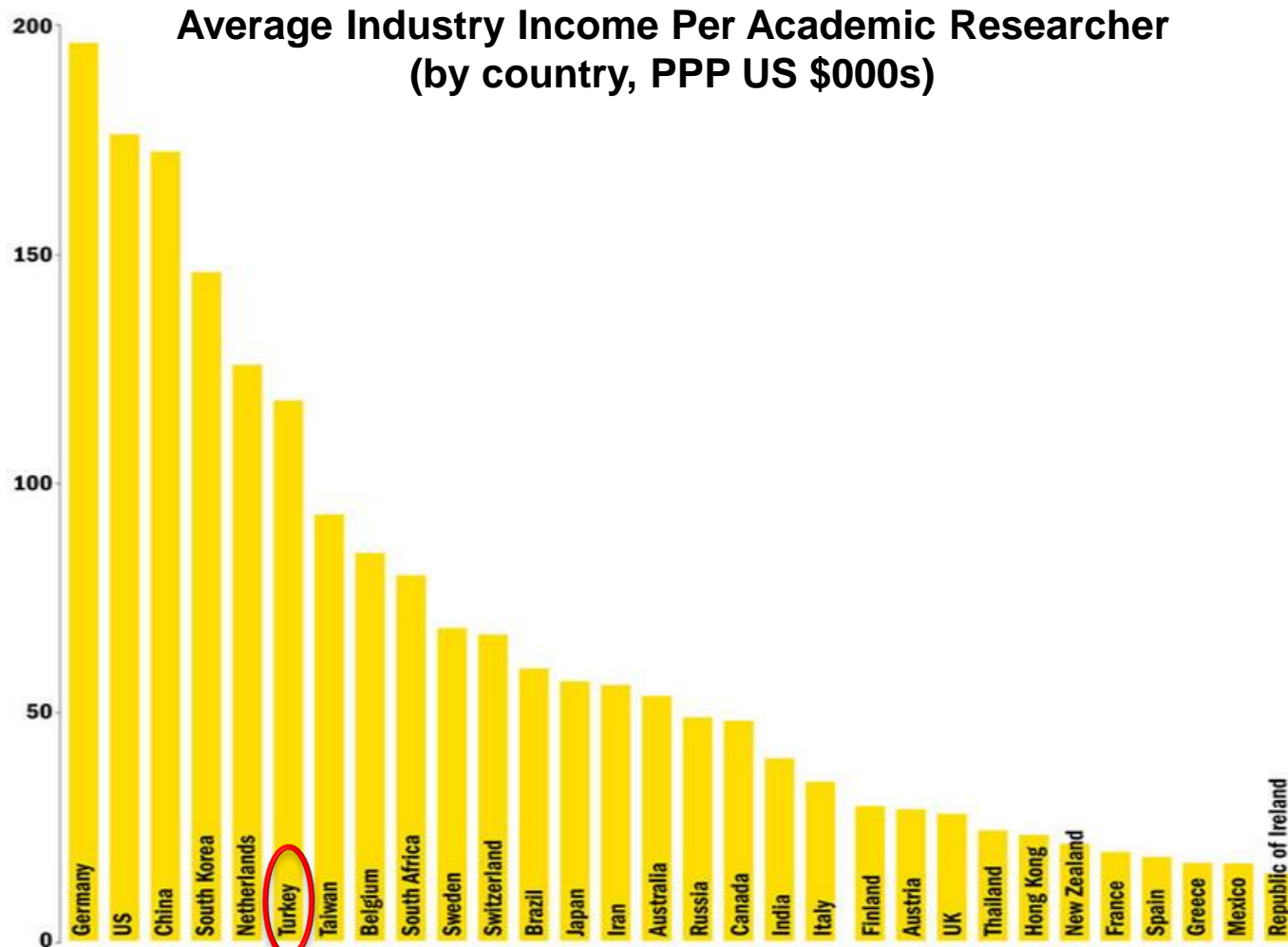
Turkey 15th in R&D Tax Credit Generosity*



* Of 31 nations assessed by ITIF (2013)

Source: ITIF, *We're #27: The United States Lags Far Behind in R&D Tax Incentive Generosity*

Industry Funding of Academic Researchers



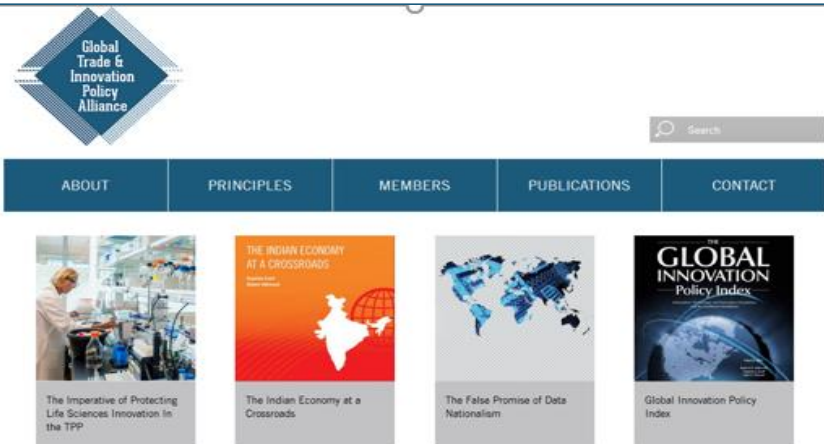
Source: Times Higher Education, *World University Rankings*, March 2016

Leveraging Tax Policy to Spur Technology Transfer and Commercialization Activities

- ✓ Generous R&D tax credits (e.g., France, India).
- ✓ Robust collaborative R&D tax credits (Canada, Korea, Spain).
- ✓ Patent boxes (Belgium, Netherlands, UK).
- ✓ Favorable tax treatment for innovative, young enterprises (France, Korea).
- ✓ Expand angel tax credit allowances as a mean to capitalize young start-ups (e.g., full \$50K tax allowance if loss).

Sources: ITIF, *We're #27: The United States Lags Far Behind in R&D Tax Incentive Generosity*
ITIF, *Creating a Collaborative R&D Tax Credit*,
ITIF, *Patent Boxes: Innovation in Tax Policy and Tax Policy for Innovation*

Global Trade and Innovation Policy Alliance



- ITIF (United States)
- The Lisbon Council (Belgium)
- The Legatum Institute (UK)
- The Center for Social and Economic Research (Poland)
- C.D. Howe (Canada)
- The BRICS Policy Center (Brazil)
- The Shanghai Science and Technology Policy Institute
- Fundación Idea (China)
- Fundacion Idea (Mexico)
- The Keio Institute (Japan)

Digital Trade

[The False Promise of Data Nationalism](#)

This report argues that calls to keep data within national borders are misguided and ineffective in making data more secure.

International Economic Institutions

[Building the Global Innovation Economy](#)

This The Futurist article explores reforms that need to be made to global international economic institutions so that they can become greater champions of global innovation.

Trade and Development

[A Policymaker's Guide to Spurring ICT Adoption](#)

ITIF's new guide gives policymakers around the world a policy checklist to spur ICT adoption.

Trade and Intellectual Property

[The Imperative of Protecting Life Sciences Innovation in the TPP](#)

To ensure the Trans-Pacific Partnership (TPP) Agreement creates a framework in which life sciences innovation flourishes throughout the TPP region, it needs to include 12 years of data protection for novel biologic drugs.

Innovation Mercantilism

[Green Mercantilism: Threat to the Clean Energy Economy](#)

Global energy innovation is being undermined by unfair trade practices.

Trade Agreements

[The ITA Expansion Deal on the Table Benefits Korea](#)

Expanding the Information Technology Agreement can bring significant benefits to Korea's economy.

Trade and Innovation

[Competitiveness, Innovation and Productivity: Clearing Up The Confusion](#)

ITIF explains the difference between competitiveness, innovation and productivity in this policy memo.

Trade and Manufacturing

[An Alternative to Mercantilism: Manufacturing Extension Services in Latin American and Caribbean Countries](#)

SME manufacturing extension programs are boosting innovation and growth in Latin American and Caribbean nations.

Thank You!

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