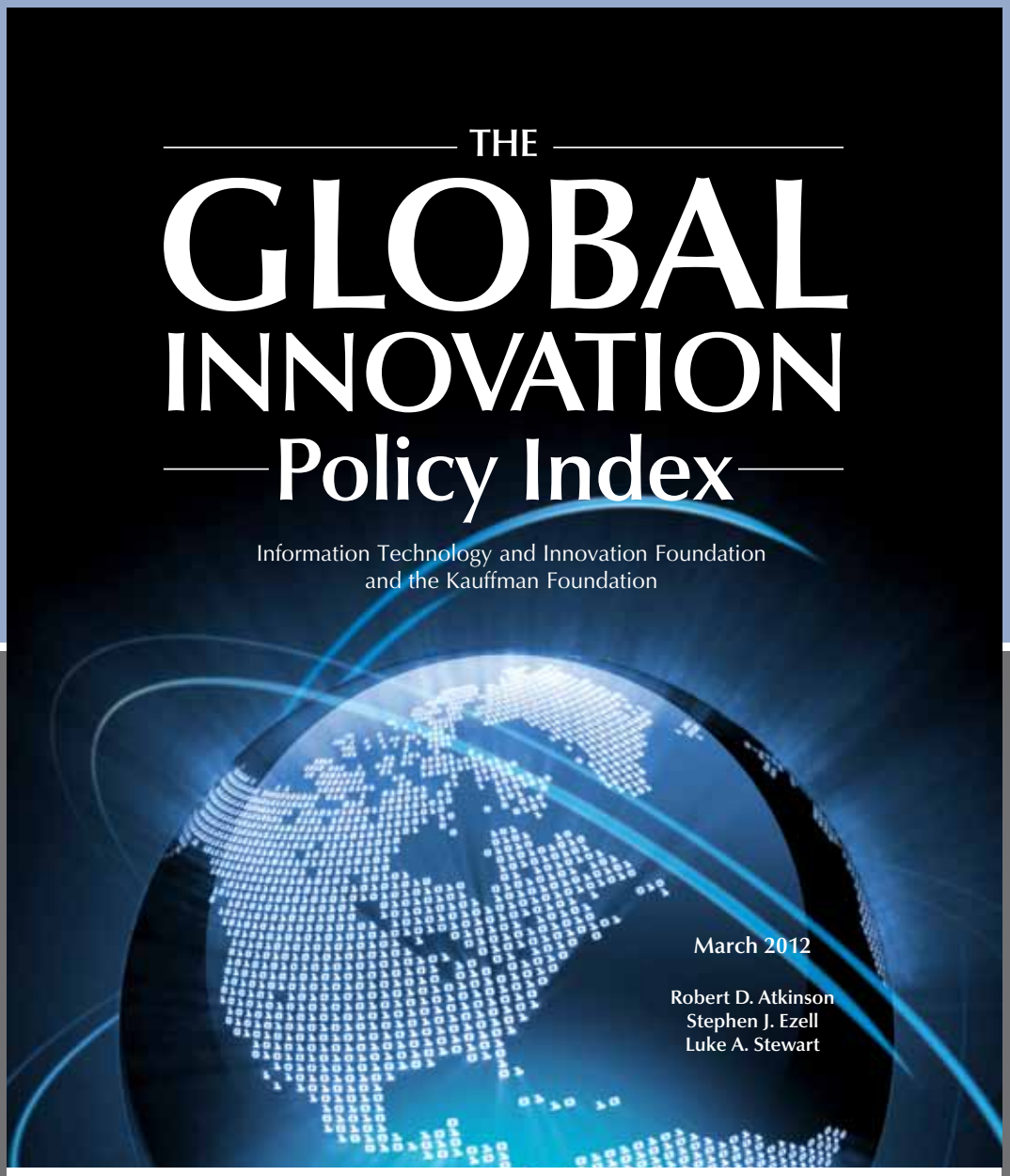

Executive Summary

Executive Summary

The last decade has seen an increasing realization among economists and policymakers that innovation has become the central economic growth driver and a key to improved standards of living. This awakening to the importance of innovation-based economic growth has spawned a fierce race for global innovation advantage among countries. To advance their competitiveness in this race, many countries are implementing thoughtful and constructive innovation policies aimed at boosting their use of information and communications technologies, helping their companies become more productive and innovative, and facilitating the creation of new companies that produce high-value-added products and services. However, some countries have put in place policies that try to win the race by distorting the global innovation system at the expense of other nations. Hence, a framework is required to identify and promote the deployment of effective innovation policies that drive domestic economic growth while ensuring a sustainable innovation ecosystem that benefits all countries throughout the world.

Effective innovation policy relies on more than just science policy and the promotion of high-tech product development. It also must focus on improving productivity across the board in all economic sectors. Countries with the best innovation strategies coordinate their policies toward skills, scientific research, information and communications technologies (ICTs), tax, trade, intellectual property, government procurement, standards, and regulations in an integrated approach designed to drive economic growth through innovation. Nations are unlikely to achieve sustainably high rates of innovation if their governments have not put in place a broad range of innovation-enabling policies that create the conditions in which organizations throughout a country—whether private enterprises, government agencies, or nonprofit entities—can successfully innovate.

To help them do so, this report provides a structured assessment of policies informing the innovation capacity of fifty-five countries. Moreover, it highlights the most effective policies countries are using to build their innovation capacity, and describes how countries can learn from one another in deploying the best policies. The fifty-five countries analyzed in this report include all members of the Organisation for Economic Co-operation and Development (OECD), all European Union (EU) member states, and nineteen of the twenty-one Asia-Pacific Economic Cooperation (APEC) member economies, as well as the large developing nations of Argentina, Brazil, India, and South Africa. According to the income classification system of the World Bank, thirty-six of the fifty-five countries are "high income," fifteen are "upper-middle income," and four—India, Indonesia, the Philippines, and Vietnam—are "lower-middle income." Due to a lack of available data, no "low-income" countries are included in the analysis.

The report assesses these countries on their strength in seven core policy areas:

1. Open and non-discriminatory market access and foreign direct investment policies;
2. Science and R&D policies that spur innovation;
3. Openness to domestic competition and new firm entry;
4. Effective intellectual property rights protection policies;
5. Digital policies enabling the robust deployment of ICT platforms;
6. Open and transparent government procurement policies; and
7. Openness to high-skill immigration.

Countries are ranked as upper tier, upper-mid tier, lower-mid tier, or lower tier on each of these seven indices, with those ranks calculated by countries' performance on an array of key sub-indicators relevant to each core policy area. In total, the study assesses eighty-four sub-indicators across the seven core innovation policy areas. The seven areas then are weighted as follows: trade, science and R&D, and digital policies at 17.5 percent of the overall weight each; intellectual property protection and domestic competition at 15 percent each; government procurement at 10 percent; and high-skill immigration at 7.5 percent, as Table ES-1 shows. Countries' ranks on the seven weighted core innovation policy areas then are aggregated to produce an overall ranking reflecting the strength of their innovation policy capacity, as Table ES-2 shows.[1] Table ES-3 shows how each country scored with regard to each of the seven core innovation policy areas.

Table ES-1: Weights of Core Innovation Policy Areas in Overall Scoring Methodology

Core Policy Area	Share of Overall Weight
Trade and Foreign Direct Investment	17.5%
Science and R&D	17.5%
Domestic Market Competition	15.0%
Intellectual Property Rights	15.0%
Digital/Information and Communications Technology	17.5%
Government Procurement	10.0%
High-Skill Immigration	7.5%

Countries with the best innovation strategies coordinate their policies toward skills, scientific research, information and communications technologies (ICTs), tax, trade, intellectual property, government procurement, standards, and regulations in an integrated approach designed to drive economic growth through innovation.

Table ES-2: Rank of Countries on Innovation Policy Capacity (in alphabetical order)

Upper Tier	Upper-Mid Tier	Lower-Mid Tier	Lower Tier
Australia	Belgium	Brazil	Argentina
Austria	Cyprus	Bulgaria	India
Canada	Czech Republic	Chile	Indonesia
Chinese Taipei	Estonia	China	Mexico
Denmark	Hungary	Greece	Peru
Finland	Iceland	Italy	Philippines
France	Ireland	Latvia	Russia
Germany	Israel	Malaysia	Thailand
Hong Kong	Lithuania	Poland	Vietnam
Japan	Luxembourg	Romania	
Netherlands	Malta	Slovak Republic	
New Zealand	Portugal	South Africa	
Norway	Slovenia	Turkey	
Singapore	South Korea		
Sweden	Spain		
Switzerland			
United Kingdom			
United States			

Table ES-3: Country Rank by Core Innovation Policy Area

Country	Aggregate	Trade	Science/ R&D	Domestic Competition	Intellectual Property	ICT	Government Procurement	High-Skill Migration
Argentina	Lower	Lower	Lower-Mid	Lower	Lower	Lower	Lower	Lower-Mid
Australia	Upper	Upper	Upper	Upper	Upper	Upper-Mid	Upper-Mid	Upper-Mid
Austria	Upper	Upper	Upper	Upper-Mid	Upper	Upper-Mid	Upper	Lower-Mid
Belgium	Upper-Mid	Upper	Lower-Mid	Upper-Mid	Upper	Upper-Mid	Upper	Lower-Mid
Brazil	Lower-Mid	Lower	Upper-Mid	Lower	Lower	Lower-Mid	Lower	Lower-Mid
Bulgaria	Lower-Mid	Upper-Mid	Lower	Lower-Mid	Lower-Mid	Lower-Mid	Upper-Mid	Lower
Canada	Upper	Upper	Upper	Upper	Upper	Upper	Upper	Upper
Chile	Lower-Mid	Upper	Lower-Mid	Lower-Mid	Upper-Mid	Lower-Mid	Upper-Mid	Lower-Mid
China	Lower-Mid	Lower	Upper-Mid	Lower-Mid	Lower-Mid	Lower-Mid	Lower	Lower-Mid
Chinese Taipei	Upper	Lower-Mid	Upper	Upper-Mid	Upper-Mid	Upper	Upper	Upper
Cyprus	Upper-Mid	Upper-Mid	Lower-Mid	Upper-Mid	Upper-Mid	Upper-Mid	Upper	Lower-Mid
Czech Republic	Upper-Mid	Upper	Upper-Mid	Upper-Mid	Upper-Mid	Upper-Mid	Upper-Mid	Lower
Denmark	Upper	Upper	Upper	Upper	Upper	Upper	Upper	Lower-Mid
Estonia	Upper-Mid	Upper	Upper-Mid	Upper-Mid	Upper-Mid	Upper-Mid	Upper	Lower-Mid
Finland	Upper	Upper	Upper	Upper-Mid	Upper	Upper-Mid	Upper	Lower
France	Upper	Upper	Upper	Lower-Mid	Upper	Upper-Mid	Upper	Lower-Mid
Germany	Upper	Upper	Upper-Mid	Upper-Mid	Upper	Upper-Mid	Upper	Lower-Mid
Greece	Lower-Mid	Upper	Lower-Mid	Lower	Lower-Mid	Lower-Mid	Upper-Mid	Lower
Hong Kong	Upper	Upper-Mid	Upper-Mid	Upper	Upper-Mid	Upper	Upper	Upper
Hungary	Upper-Mid	Upper	Lower-Mid	Lower-Mid	Upper-Mid	Upper-Mid	Upper-Mid	Lower-Mid
Iceland	Upper-Mid	Upper-Mid	Upper-Mid	Upper-Mid	Upper-Mid	Upper	Upper	Lower-Mid
India	Lower	Lower	Upper-Mid	Lower	Lower-Mid	Lower-Mid	Lower	Lower-Mid
Indonesia	Lower	Lower	Lower	Lower	Lower	Lower	Lower	Lower-Mid
Ireland	Upper-Mid	Upper	Lower-Mid	Upper-Mid	Upper	Upper-Mid	Upper-Mid	Lower-Mid
Israel	Upper-Mid	Lower-Mid	Upper-Mid	Lower-Mid	Upper-Mid	Upper-Mid	Upper-Mid	Upper
Italy	Lower-Mid	Upper	Upper-Mid	Lower	Upper-Mid	Lower-Mid	Upper-Mid	Lower
Japan	Upper	Lower-Mid	Upper-Mid	Upper-Mid	Upper	Upper-Mid	Upper	Upper-Mid
Latvia	Lower-Mid	Upper	Lower-Mid	Lower-Mid	Upper-Mid	Lower-Mid	Lower-Mid	Upper-Mid
Lithuania	Upper-Mid	Upper	Upper-Mid	Lower-Mid	Lower-Mid	Upper-Mid	Upper-Mid	Lower
Luxembourg	Upper-Mid	Upper	Lower	Lower-Mid	Upper	Upper-Mid	Upper	Lower-Mid
Malaysia	Lower-Mid	Lower-Mid	Lower	Upper-Mid	Lower-Mid	Upper-Mid	Lower	Upper-Mid
Malta	Upper-Mid	Upper-Mid	Lower	Upper-Mid	Upper-Mid	Upper-Mid	Upper-Mid	Lower
Mexico	Lower	Upper-Mid	Lower	Lower	Lower-Mid	Lower	Lower	Lower
Netherlands	Upper	Upper	Upper	Upper-Mid	Upper	Upper	Upper	Lower-Mid
New Zealand	Upper	Upper	Lower-Mid	Upper	Upper	Upper-Mid	Upper-Mid	Upper-Mid
Norway	Upper	Upper	Upper	Upper-Mid	Upper	Upper	Upper	Lower-Mid
Peru	Lower	Upper-Mid	Lower	Lower	Lower	Lower-Mid	Lower	Lower-Mid
Philippines	Lower	Lower	Lower	Lower	Lower	Lower	Lower	Upper-Mid
Poland	Lower-Mid	Upper-Mid	Lower-Mid	Lower-Mid	Upper-Mid	Lower-Mid	Upper-Mid	Lower-Mid
Portugal	Upper-Mid	Upper	Upper-Mid	Lower-Mid	Upper-Mid	Upper-Mid	Upper	Lower
Romania	Lower-Mid	Upper	Lower-Mid	Lower	Lower-Mid	Lower-Mid	Lower-Mid	Lower
Russia	Lower	Lower	Upper-Mid	Lower	Lower	Lower	Lower	Lower-Mid
Singapore	Upper	Upper	Upper	Upper	Upper	Upper	Upper	Upper
Slovak Republic	Lower-Mid	Upper	Lower	Upper-Mid	Upper-Mid	Lower-Mid	Upper-Mid	Lower
Slovenia	Upper-Mid	Upper	Upper-Mid	Lower-Mid	Upper-Mid	Lower-Mid	Upper	Lower
South Africa	Lower-Mid	Lower-Mid	Lower-Mid	Lower-Mid	Upper-Mid	Lower	Lower	Upper-Mid
South Korea	Upper-Mid	Lower-Mid	Upper	Lower-Mid	Upper-Mid	Upper	Upper-Mid	Lower-Mid
Spain	Upper-Mid	Upper	Upper	Lower-Mid	Upper-Mid	Upper-Mid	Upper-Mid	Lower
Sweden	Upper	Upper	Upper	Upper-Mid	Upper	Upper	Upper	Lower-Mid
Switzerland	Upper	Upper-Mid	Upper-Mid	Upper	Upper	Upper	Upper	Lower-Mid
Thailand	Lower	Lower	Lower	Lower-Mid	Lower	Lower-Mid	Lower	Lower-Mid
Turkey	Lower-Mid	Lower-Mid	Lower-Mid	Lower-Mid	Lower-Mid	Lower-Mid	Lower-Mid	Lower
United Kingdom	Upper	Upper	Upper-Mid	Upper	Upper	Upper	Upper	Lower-Mid
United States	Upper	Upper	Upper-Mid	Upper	Upper	Upper	Upper	Upper-Mid
Vietnam	Lower	Lower-Mid	Lower	Lower-Mid	Lower	Lower	Lower	Lower-Mid

Developed nations should focus on implementing science and R&D policies that increase the supply of ideas, knowledge, and technology in their economies and then incentivize their commercialization.

To maximize global innovation, countries need to implement their policies with regard to trade, science and R&D, ICT, intellectual property rights, domestic market competition, government procurement, and high-skill immigration in ways that maximize their innovation capacity but without distorting global trade. To accomplish this, countries' policies will have to be predicated on transparent, non-discriminatory, market-based principles that embrace both global standards and the free flow of talent, capital, information, products, services, and technologies. The following provides a brief summary of the key points in each of the seven core innovation policy areas.

Trade: As innovation and trade policy have become increasingly intertwined, openness to trade characterized by open market access and receptivity to foreign direct investment has become a bedrock pillar of a country's innovation capacity:

- Free trade benefits all countries by allowing each to specialize in producing the products or services in which they have a comparative or competitive advantage.
- Countries should not specialize in all technologies and industries; rather, trade enables them to specialize in what they are good at and then trade for the rest.
- A vital component of free trade is openness to both inward and outward foreign direct investment.
- Another critical component is the use of voluntary, market-led, global standards.

Science and R&D: Science and R&D policies boost countries' innovation potential while enhancing their ability to benefit from technology-based innovation:

- Developed nations should focus on implementing science and R&D policies that increase the supply of ideas, knowledge, and technology in their economies and then incentivize their commercialization.
- Developing nations should focus more on implementing science and R&D policies that enable their organizations to adopt newer and better technologies.
- Countries should utilize a diverse portfolio of science and R&D tools, targeting strategic and broad technologies and industries at all stages of their development.
- Technology and R&D policies should be coordinated by a National Innovation Foundation to take advantage of inherent synergies between policies.
- Science and R&D policies should not discriminate against foreign firms operating domestically.

Domestic Competition: Vibrant domestic markets supported by a sound and rules-based regulatory environment that allows both existing and new firms (whether domestic- or foreign-owned) to compete on a level playing field remain a lynchpin of prosperity:

- Competitive marketplaces are one of the strongest drivers of innovation and productivity growth.
- Countries should remove onerous regulatory restrictions, incumbent protections, cross-border trade restrictions, and labor market restrictions that inhibit competition.
- Leading countries feature regulatory systems that are transparent and non-discriminatory, provide due process, and include opportunities for the meaningful engagement of all stakeholders.
- Countries should create an environment that fosters entrepreneurship throughout all sectors of the economy.

IPR: Recognition of intellectual property rights (IPR) is a vital element if global trade and foreign direct investment are to thrive:

- Effective protection and enforcement of IPR encourages innovators to invest in research, development, and the commercialization of technologies while promoting their dissemination.
- Weak intellectual property rights protections reduce the flow of foreign direct investment and technology transfer.
- Without adequate intellectual property protections, there will be less innovation overall, and this hurts all countries.
- IPR reform tends to deliver positive economic results regardless of a country's level of development.

Digital Policies: Information and communications technology is the global economy's strongest enabler of productivity and innovation:

- Effective digital policies focus first and foremost on spurring ICT use throughout the economy.
- The vast majority of benefits from ICT come

from the widespread use of ICT in all sectors as opposed to its production.

- Leading countries recognize that the greatest opportunity to improve their economic growth lies in increasing the productivity of their domestic sectors, particularly through the application of ICT.

Government Procurement: Because government procurement accounts for such a large share of economic activity in most countries, government procurement policy is an important and legitimate component of countries' innovation strategies:

- Governments should orient their procurement policies to become strong drivers of innovation.
- Government purchases should be made on the basis of the best value for government, not on the basis of national preferences.
- Government procurement policies should be transparent, non-discriminatory, openly competitive, and performance-based.
- Countries should refrain from adopting measures that make the location of the development or ownership of intellectual property, or any requirement to license intellectual property to a domestic entity, a condition for government procurement eligibility.

High-Skill Immigration: Talent has become the world's most sought-after commodity. Thus, having a highly skilled talent pool to draw from has become vital to countries' economic well-being:

- High-skill immigrants play a critical role in bringing skills, talent, and knowledge to societies while contributing to new firm development, employment, and economic growth.
- Immigration policies play an important part in contributing to a country's knowledge pool and creative ability by bringing in new perspectives and needed skills and knowledge.

Executive Summary Endnotes

1. To calculate countries' final overall ranks, raw scores for each of the eighty-four indicators were first standardized. Using these standardized scores, a weighted average score was calculated for each country for each section and overall. The tiers then are calculated as four equidistant partitions between the resulting maximum and minimum scores in each section and overall. The number of countries in each tier can vary widely within section rankings; for example, a country whose average score is a relative outlier may be the sole member of a tier. Country scores are calculated with available data only; missing values are ignored and do not affect a country's position in the tiered rankings.

The full Global Innovation Policy report contains detailed information on the topics below:

6. **Digital and Information and Communications Technology**
   - ICT's Role in the Innovation Ecosystem
   - Assessing Countries' Digital Policies
   - Competitiveness of ICT Infrastructure and Policy
   - International Openness to ICT Market and Competition
   - Legal Environment
   - ICT Usage

7. **Government Procurement**
   - Why Government Procurement Can Be a Driver of Innovation
   - Assessing Countries' Government Procurement Policies

8. **High-Skill Immigration**
   - Why High-Skill Immigration is Important
   - Assessing Countries' High-Skill Immigration Policies

To download the entire report, go to www.kauffman.org/globalinnovationpolicy or to www.itif.org/globalinnovationpolicy

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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 advances in information technology will create new economic opportunities to improve the quality of life. Non-profit and non-partisan, we offer pragmatic ideas that break free of economic philosophies born in eras long before the first punch card computer and well before the rise of modern China. ITIF, founded in 2006, is dedicated to conceiving and promoting the new ways of thinking about technology-driven productivity, competitiveness, and globalization that the twenty-first century demands.

ITIF publishes policy reports, holds forums and policy debates, advises elected officials and their staffs, and is an active resource for the media. It develops new and creative policy proposals, analyzes existing policy issues through the lens of bolstering innovation and productivity, and opposes policies that hinder digital transformation and innovation.

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The Ewing Marion Kauffman Foundation is a private, nonpartisan foundation that works with partners to advance entrepreneurship in America and improve the education of children and youth. Founded by late entrepreneur and philanthropist Ewing Marion Kauffman, the Foundation is based in Kansas City, Mo. For more information, visit www.kauffman.org, and follow the Foundation on www.twitter.com/kauffmanfdn and www.facebook.com/kauffmanfdn.

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