<<20130111>> Archived distributions can be retrieved at; <<http://tinyurl.com/azg3eyl>>. This archive includes a html version of this list distribution and its MS/WORD version with its filename as “year-month-date.doc.” You can also access all of its attachments, if any.

**References:**

(a) "Globally Collaborative Innovation Network with Global University System," (July, 2006)
<<http://tinyurl.com/fuwg6>>

(b) The Global Early Warning System (GEWS) with The Global University System (GUS): Their Use Within ECOWAS Countries (October 7, 2012)
<<http://tinyurl.com/bqbjh9g>>

**Dear e-Colleagues:**

**Happy and Healthy New Year!!**

(1) I would strongly suggest to read the article in **ATTACHMENT I** below.

(2) In relation to this article, you may also be of some interest in reading the References (a) and (b) above.

As you see in the last diagram in the last page of the Reference (b) above, we are now creating global models on;

(a) Globally Distributed Socio-Economic-Environmental Simulation System and
(b) Globally Distributed Climate Simulation System

in a global scale virtual super-computer, which is to be the step toward the creation of globally collaborative innovation network (Reference (a) above).  We believe that the advent of broadband global Internet enables the realization of unleashing and energizing youngsters' creative minds around the world (\*) collaboratively -- which subsequently leads to the attainment of global peace.  This is to follow the precedence of Renaissance, which was created under two distinct cultures of Christianity and Islam.

(\*) There is abundant excellent brainpower in Africa, which is more valuable than gold, diamond, crude oil, etc.

(3) We expect very exciting and productive New Year!!  We look forward to have your cooperation.

Best, Tak

**ATTACHMENT I**

**The Intensifying Competition for Global Innovation Leadership**Stephen Ezell - 7th January 2013
<[http://www.globalpolicyjournal.com/videos/stephen-ezell-–-global-race-innovation](http://www.globalpolicyjournal.com/videos/stephen-ezell-%E2%80%93-global-race-innovation)>

Innovation—the improvement of existing or the creation of entirely new products, processes, services, and business or organizational models—is the central driver of modern economic growth. For example, technological innovation has been linked directly to three-quarters of the United States’ post-World War II economic growth rate. Innovation is key because it drives productivity growth—increased output per unit of work—as reflected by the fact that two-thirds of United Kingdom (UK) private-sector productivity growth between 2000 and 2007 was a result of innovation. And this drives increasing incomes; in fact, 90 percent of the variation in the growth of income per worker across countries is attributable to innovation.

Given innovation’s central importance to modern economies, a fierce race for global innovation leadership has emerged, as nations try to incubate, grow, and attract the highest-value-added economic activity they can: the high-wage, knowledge-intensive manufacturing, research, information technology (IT), and services industries (and jobs) that power today’s global, innovation-based economy, as the Information Technology and Innovation Foundation (ITIF) writes in its new book **Innovation Economics: The Race for Global Advantage**. Indeed, countries around the world are establishing national innovation agencies and strategies, restructuring their tax and regulatory systems to become more competitive, expanding support for science and technology, improving their education systems, spurring investments in broadband and other IT platforms, and taking a myriad of other steps to bolster their innovation capacity. This article examines three key steps many nations have taken to turbocharge innovation—developing national innovation agencies and strategies, investing in research and innovation, and redesigning their tax systems to incentivize innovation—and reflects on the implications of the race for innovation advantage on the global economy.

What’s particularly striking about the global race for innovation advantage has been its acceleration and intensification over the past decade. Since the year 2000 alone, almost two dozen countries—developed and developing alike—have introduced national innovation agencies and almost four dozen have articulated national innovation strategies. These countries understand that government can—and must—play a constructive role in helping their private sector compete. Their innovation strategies constitute a coherent approach that seeks to coordinate disparate policies toward scientific research, technology commercialization, IT investments, education and skills development, tax, trade, intellectual property (IP), government procurement, and regulatory policies in an integrated fashion that drives economic growth by fostering innovation. In essence, these countries’ innovation strategies represent a gameplan for how their economies can compete and win in global competition.

For instance, British Prime Minister David Cameron in his **Lord Banquet speech** on November 12, 2012, acknowledged that “Britain is in a global race that is a moment of reckoning for every country” and unabashedly called on his country to articulate a “modern industrial strategy” to help Britain “compete and win” in the intense global race “for high-knowledge, high-value goods and jobs.” As is common in many countries’ innovation strategies, Cameron named specific industries the UK should seek global leadership in—including life sciences, finance, creative industries, aerospace, clean energy, and marine technologies—and announced specific policies to turbocharge UK competitiveness in each of those sectors. Likewise, **The Swedish Innovation Strategy** and the accompanying **Government’s Research and Innovation Bill** introduced in 2012 call for targeted investments in “key areas of particular importance for Swedish industry and society” including life sciences; mining, materials, and steel; sustainable civil engineering and urban management; and forestry. Meanwhile, **Finland’s National Innovation Strategy**, released in 2011, focuses on six critical sectors—health care, energy and the environment, forestry products, IT, construction, and mechanical engineering—and **Germany’s High-Tech Strategy** (initially released in 2006 and updated in 2010) focuses on innovation in twenty key sectors and technologies of vital importance to the German economy, identifying Germany’s strengths, weaknesses, threats, and opportunities in each industry. And **China’s Innovation 2020** strategy, announced in 2011, focuses on seven “strategic” sectors—nuclear fusion and nuclear-waste management, stem cells and regenerative medicine, clean energy, materials science, IT, public health, and the environment—in which the country seeks global leadership.

The point is that a broad range of countries have implemented aggressive policies to ensure that they achieve or maintain innovation leadership in a range of key high-tech, high-value added industries. And countries’ well-implemented innovation strategies can be highly effective: a 2009 study by the German Association of Chambers of Industry and Commerce found that 30 percent of all German companies attributed their successful innovations over the prior two years “to improved research and innovation policies at the federal level.”

Another attribute of the intensifying race for global innovation advantage is countries’ increased investment in research and development (R&D) and innovation. In fact, many countries invest substantially more in innovation than the United States on a per capita basis, and many countries have increased their investments since the late 1990s. For example, while U.S. R&D intensity (R&D as a share of GDP) increased by a paltry 10.4 percent from 1995 to 2008, it increased substantially more in most other nations, including Germany (20.5 percent), Japan (26.2 percent), Korea (42.2 percent), Taiwan (61 percent), Finland (65 percent), Singapore (135.1 percent), and China (170.2 percent). Nor are countries stopping there. China plans to invest $1.5 trillion in its seven strategic industries from 2011 to 2020. To get a sense of the level of this investment, for the United States to match this on a per-GDP basis, it would have to pass an American Recovery and Reinvestment Act (the 2008 “stimulus bill” that appropriated over $800 billion) every year for the next five years and have all the funds (and more) go to making U.S. industries more competitive. Meanwhile, Sweden’s 2012 Research and Innovation bill will provide an additional SEK 9 billion ($1.4 billion) in research and innovation funding over baseline from 2008 to 2016, a 25 percent increase in the Swedish government’s investment in research and innovation. Meanwhile, Germany is investing 10 percent of its GDP in R&D, innovation, and education. With their economies performing well, forward-looking countries like Germany, China, and Sweden are investing now to secure their innovation leadership positions in the future.

A third salient feature of the race for global innovation advantage is countries’ aggressive reform of their tax systems to incentivize innovation. Indeed, many countries have come to recognize incentives as indispensable tools in building global competiveness and so provide rewards ranging from grants and tax breaks for specific corporate projects and desired behavior (e.g., performing R&D or investing in new equipment) to general reductions in corporate taxes. Whether it’s China providing tax holidays to attract a high-tech factory, the UK introducing a so-called “patent box,” or Ireland providing one of the lowest corporate tax rates (10 percent), many nations actively encourage innovation and domestic investment.

Perhaps the most prominent example of this is Organization for Economic Cooperation and Development (OECD) nations’ dramatic lowering of corporate tax rates over the past three decades. Deveraux, Lockwood, and Redoano find that OECD nations’ corporate tax rates declined from nearly 50 percent in the early 1980s to less than 35 percent in 2001, and that international tax competition was the principal driver behind those reductions. By 2009, the non-U.S. OECD rate had declined even more, to just below 30 percent. Sweden recently cut its corporate tax rate to 22 percent (and eliminated its wealth and inheritance taxes). Amazingly, the United States now has the highest statutory corporate tax rate in the OECD; it being the only OECD nation in which statutory corporate tax rates did not fall between 2000 and 2012.

Recognizing that incentives are an important driver of innovative behavior, a number of countries have begun to offer generous (and stable) R&D tax credits both to encourage existing companies to expand R&D activity and to attract globally mobile R&D activity. For instance, India and France now offer the world’s most generous R&D tax credits, almost six times higher than that of the United States.22 In fact, the United States ranks just 27th (and the United Kingdom 25th) out of 41 countries **assessed by ITIF in 2012** in terms of R&D tax credit generosity.

But not only have other nations put in place more generous research incentives, they also have been more innovative in using novel incentives to spur research and innovation. For example, Denmark, the Netherlands, and Norway have extended their R&D tax credits to cover process R&D activities, effectively extending the R&D tax credit from goods to services industries as well. And at least nine countries—Belgium, China, France, Ireland, Luxembourg, the Netherlands, Spain, Switzerland, and the United Kingdom—have adopted or expanded tax incentives designed to spur the commercialization of R&D. These incentives, or “**patent boxes**” (so-called because there is a box to tick on the tax form), allow corporate income from the sale of patented products (and in some cases from innovation-based products) to be taxed at a lower rate than other income. Other countries, including Australia, Canada, France, Norway, and the United Kingdom, have implemented innovative tax policies offering preferential tax treatment to small businesses, especially those engaged in innovative activities.

While this is just a sampling of the wide variety of policy reforms countries have made to spur innovation in their economies, the implication is clear: the global competition for innovation leadership is heating up. And this is a good thing, for we envision this “global race for innovation advantage” as one in which virtually all nations win, with higher productivity and per-capita incomes, new and better products and services, and a better quality of life for all.

Indeed, the global race for innovation advantage can be one in which all people and all countries win—but only if everyone is playing by the right set of rules. Yet countries’ focus on innovation creates both global opportunities and threats, because countries can implement their innovation strategies in either constructive or destructive ways. Therefore, it’s vitally important that the global policy community ensures that countries are implementing win-win innovation policies as opposed to zero-sum “innovation mercantilist” policies that help one country to win at the expense of all others. In fact, we can envision a matrix (Figure 1) that categorizes countries’ innovation policies as are either: 1) “Good,” benefiting the country and the world simultaneously; 2) “Ugly,” benefiting the country at the expense of other nations; 3) “Bad,” appearing to be good for the country, but actually failing to benefit either the country or the world; or 4) “Self-destructive,” actually failing to benefit the country but benefiting other countries.

***Figure 1: The Good, the Bad, the Ugly, and the Self-destructive of Innovation Policy***

“Good” innovation policies include countries’ increasing investments in education and scientific research, openness to high-skill immigration, and promotion of IT deployment and adoption. Countries’ Good innovation policies are positive for the world, as discoveries, inventions, and innovations made in one nation ultimately spill over to the benefit of citizens worldwide. Countries’ “Ugly” policies include those, such as currency or standards manipulation, IP theft, forced IP transfer, or domestic sourcing of production as a condition of market access, designed to benefit themselves to the detriment of others. “Bad” policies are those such as import substitution industrialization or restrictions on foreign direct investment, that a country believes will help it, but that in fact do more harm than good to a country’s economy. Finally, “Self-destructive” innovation policies, such as the United States’ turning away high-skill immigrants or raising corporate taxes so high that multinational corporations relocate elsewhere, are those that hurt a country while actually benefiting others.

To be sure, there is nothing sinister about countries engaging in fierce innovation and economic competition, and there is nothing wrong with countries competing to win—so long as they are competing according to the rules of international trade established by the global community. In fact, when a country intensely competes to win, within the rules of the system, doing so benefits both itself and the world. This is because fair competition forces other countries to put in place the right policies on support for science and technology transfer, the right tax policies on R&D tax credits, the right corporate tax policies with lower tax rates, the right education policies, etc. In other words, it promotes a positive “race to the top” that forces other nations to ratchet up their games. The problem comes when countries start to cheat and contravene the global economy’s established rules. These “Ugly” practices can indeed help countries win. But not only do such policies harm other countries, they cause the system to devolve into a competition where every country is incented to cheat, and to beggar-thy-neighbor. And so the overall system decays, the competition becomes worse, and the global supply of innovation decreases.

The major challenge for the community of nations, therefore, is to create a robust global innovation system with considerably higher rates of win-win innovation and considerably lower rates of win-lose innovation. As ITIF argues in ***Reimaging the Global Innovation Economy***, to get there we need to reform a host of global institutions—including the World Bank, the World Trade Organization (WTO), and the International Monetary Fund (IMF)—to make promoting sustainable, domestic-led innovation their primary activity. For example, the IMF should tie its future financial assistance not to whether governments cut spending to get budgets under control (its current practice), but instead to whether they are abandoning innovation mercantilist practices and putting in place policies to drive domestic innovation and productivity. The World Bank needs to stop encouraging policies designed to support countries’ export-led growth strategies and instead focus on boosting productivity and innovation in the non-traded sectors of a nation’s economy. And the World Trade Organization needs to broaden its vision from primarily reducing tariffs to combatting non-tariff barriers, currency manipulation, and other innovation mercantilist practices. In summary, the global policy community needs to work on developing a new international innovation policy framework that will maximize the global supply of sustainable innovation and ensure that countries’ competition for global innovation leadership redounds to the benefit of all the world’s citizens.

Stephen Ezell is a Senior Analyst at the **Information Technology and Innovation Foundation**, a technology and economic policy think tank located in Washington, DC. Stephen has also been interviewed Global Policy's Kat Wall about his new book '***Innovation Economics***'. The interview explores why America is falling behind in innovation.

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