

HSS Visiting Speaker Program – Governance and Regulation: U.S. to Lead or Lag in the 21st Century?

Co-Sponsored by the National Academy of Public Administration. July 24, 2009



Innovation and competitiveness result from three factors that must work well together: business environment, regulatory environment, and innovation policy.

The U.S. has the best business environment in the world. We have a good entrepreneurial climate. We have good managerial talents. And we have good financial markets – current economic crisis notwithstanding.

The regulatory environment must be pro-innovation on both the social side and the business side. The U.S. is good – and can do better.

*Dr. Robert D. Atkinson, President,
Information Technology and
Innovation Foundation*

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The U.S. is woefully inadequate when it comes to innovation policy. We need to develop a pro-active, well-thought out and aggressive innovation policy. We are behind and falling further behind in relation to other countries in the E.U. and Asia, which in the past 10 years have implemented aggressive innovation policies and established innovation agencies.

Other countries aren't considering whether it is a good idea; they are thinking tactically. They realize that they must have these policies and that government has a role – we are still at Phase 1.

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In a benchmark analysis of the U.S. against 10 countries, we are last on innovation and innovation policy and falling further behind. We are #5 on venture capital funding, #4 on government research and development, #5 on corporation research and development, #6 on new firms.

Why this should matter – we are losing ground. The rate of change over the past decade is staggering; 30th on rate of growth of corporate research and development, 24th on the rate of growth of government research and development, 21st on the rate of growth for new firms, 16th on the rate of growth of venture capital. We are making less progress than Brazil, Russia, Japan, Great Britain, France, Canada, and Australia.

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Our performance on innovation-based competitiveness is worsening. Most nations have innovation agencies, similar to the National Science Foundation) that are national innovation foundations. For example, Japan's New Energy and Industrial Technology Development Organization (NEDO), a quasi-public agency with a \$2B budgeted focus on technology transfer.

In comparison, the U.S. expenditure on innovation policies explicitly focused on commercial innovation is \$1.3-3B. As a percentage of our GDP, the U.S. would need to spend roughly \$3.6-\$32B to match what other nations are doing.

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What do we need to do?

- Establishing sector-specific consortia. Encouraging research in centers at universities to develop roadmaps on future technology needs.
- Real incentives for collaboration (e.g., the collaborative R&D tax credit).
- Enhance the federal-state partnership by including and using the technology transfer programs in all 50 states.
- Establish a federal Office of Innovation Policy

Innovation doesn't just happen, it needs to be incentivized, structured, and crafted.

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The good news is that the U.S. is now spending more money on research due to the “Stimulus Act” but it is unclear how long this increase in funding will last.

There is a resurgence in research – a short term boost with the question of longevity. This impacts taking on research if the funding is uncertain and the consideration that the research would need to be ended after a few years.

Innovation requires more than just research inputs. Research inputs are NOT innovation. Innovation is complex, our institutions remain fixed on a linear model.

Dr. Charles Wessner, Director of the Program on Technology, Innovation and Entrepreneurship, National Academies of Science

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It is always good to do more basic research because you never know what the outcome may be. What we do too often is spend a lot of money on research, cross our fingers, and hope that our good ideas and discoveries will survive the “valley of death” and be manufactured into profitable goods.

We currently have some good programs to help researchers bridge the “valley of death”. One is the Technology Innovation Program and the other is the Small Business Innovation Research Program. SBIR is actually a very successful program and is being adopted by other countries. SBIR is not a set aside, but an instrument of innovation with demonstrated capabilities of making progress across the “valley of death.”

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We have the research money here in SBIR program – 20-25% of the top 100 innovations in this country come from the SBIR program.

20% of the companies are created because of this program. It encourages partnering and cooperation between small companies and universities; and there is no crowding out due to research initiations.

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Small companies have great ideas; more small companies are even better! But many do not survive through Phase II and there is no automatic Phase III. A third of the SBIR program participants each year are new companies.

There is no U.S. company that exports from this country that has not benefited significantly from government support.

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What we do need is what the Chinese have – a focus on innovation as key to their national security. They have a commitment to working on new programs linking their universities to the market and they're willing to spend lots of money on this focus.

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There are many regulations already out there relating to technology transfer (Stevenson-Wydler Act, Bayh-Dole Act, Energy Policy Act, Federal Tech Transfer Act). There are also a fair number of enabling mechanisms (CRADAs, Work for Others, Intellectual Property licensing agreements, and user facility agreements).

These existing regulations are effective and should not be modified. We should focus on identifying and improving best practices. We should provide subsidies for specific sectors such as energy as well as better web-based information-sharing among universities, national labs, and the private sector.

Innovation is now being driven by smaller companies – a true shift from the days of Bell Laboratories.

Dr. Ralph Taylor-Smith, General Partner, Battelle Ventures L.P.

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Innovation Research Issues include:

- Inability to identify and evaluate technologies with commercial promise
- Lack of funding to test whether technologies could be carried forward to the stage where private companies would be interested
- Negotiation of appropriate technology transfer agreements between small companies (venture-backed) and large laboratories/universities – adds unnecessary complications

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An interesting development is the international aspect – that while U.S. industry acknowledges outsourcing as an issue, we are sourcing technologies from other nations and bringing it to the U.S. for commercial applications.

International business development issues such as ITAR and export controls can be significant roadblocks to companies and a great deal of effort is spent mitigating these issues.

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What other issues exist and what are the proposed solutions?

- Venture capitalists are willing to take the risk with the addition of federal laboratory funding
- Need better alignment of risk/reward mechanisms to encourage investment
- Encourage the entrepreneur in residence programs where entrepreneurs are located within universities and federal laboratories to help develop a better interface between private and public sectors.
- Maturation funding – develop research “incubators” to help span the “valley of death”

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- Technology transfer – standardize agreements perhaps even umbrella agreements that are good at several sites to streamline operations
- Training – help scientists and engineers better understand the role of entrepreneurs and venture capital in the research model
- Internet/Information age – getting information on programs out and known for better understanding
- Success stories – spread the word on the successful ventures
- Incentives – getting technology into the market

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The E.U. has a “Seventh Framework Programme” which is a competitive strategy to advance its knowledge-based economy to be the most dynamic and competitive in the world. This and other E.U. programs represent not just a national strategy but a continental strategy on innovation and competitiveness.

The E.U. also has developed a manufacturing strategy to focus on transforming industries to produce high-value products and services, produce highly-skilled workers, and increase their share of world manufacturing output.

Dr. Cynthia McIntyre, Senior Vice President, Strategic Operations, Planning and Development, Council on Competitiveness

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The U.S. is competing against countries and continents that are thinking strategically about how to leverage their investments in research, infrastructures, and creating public-private partnerships to gain a competitive edge.

We need to focus on how to develop strategies to innovate and manufacture, including the development of new models of public-private partnership and strengthening capital formation.

*Dr. Cynthia McIntyre, Senior Vice President,
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