

Technology Leadership and Strategy Initiative

2009-2017

Overview & Key Recommendations



Compete.

Council on
Competitiveness

Setting the Stage

Private sector leaders formed the Council on Competitiveness in the mid-1980s in response to Japan posing the first real challenge to America's economic leadership since the end of World War II. Technology, trade, and market access in sectors like semiconductors, supercomputers, satellites and electronics played a significant role in the competition, alongside concerns about product quality management.

Shortly thereafter, the end of the Cold War and the dawn of the Internet age shifted the competitiveness landscape again. Countries moved toward more open market-based economies. Several forms of work could be done remotely. Firms began to distribute economic assets and activities across the globe where they would be most competitive.

In this increasingly competitive world, the Council was among the first to recognize that the capacity to innovate and commercialize technology differentiates national and regional economies. The Council published in 2001 *Clusters of Innovation: Regional Foundations of U.S. Competitiveness*. This groundbreaking report and initiative offered a framework to evaluate regional cluster development and innovation performance, setting off an explosion of activity to foster innovation across America and throughout the world.

Nations copied—and in some cases built on—the U.S. innovation model, investing in talent, research, and high technology infrastructure. Political leaders and economic development officials worldwide still seek to build and strengthen innovation clusters that attract investment and generate high margin companies around new technologies.

Other Council initiatives:

- Supplied tools for building innovation-led regional economies;
- Illustrated success through case studies; and
- Explained how regions can engage business leaders and map their assets.

The Council also pioneered the country's innovation movement, starting with the first-ever National Innovation Summit at MIT in 1998 and followed by a major, CEO-led National Innovation Initiative in 2003-2005. The resulting *Innovate America* report explained how innovation was changing, outlined its central role in competitiveness, and put forth a national agenda that culminated in the America COMPETES legislation.

New management strategies, better public policies, and new forms of collaboration are needed to compete in technology markets that offer short windows for growth and rapid rates of obsolescence.

In 2009, the Technology Leadership and Strategy Initiative (TLSI) strode into this ever-evolving fray defined by new challenges. In the wake of a recession and growing U.S. fiscal imbalances, federal investment in basic research is under intense pressure as enterprises struggle to find and develop the talent they need, and to react strategically to rapidly evolving and globally diffuse technology advances.

America's economic and security interests require new management strategies, better public policies, and new forms of collaboration between the principal stakeholders—industry, government, universities, national laboratories and the risk capital community. Corporations that operate global research functions report that many educational and research institutions outside the United States offer more favorable terms to collaborate and innovate. Defense, intelligence, and homeland security officials realize that best-of-breed technologies critical to their missions are often developed by the private sector—often outside the United States.

For the past eight years, the TLSI has helped to understand these changes, challenges, and opportunities—and to suggest ways to strengthen America's technology leadership. The United States needs a senior technology leadership group to articulate priorities and offer an informed voice. **By convening corporate chief technology officers with their peers at top research universities and the national laboratories, the TLSI has emerged as a proven national asset to America's public sector leaders who have regularly engaged in twice-yearly TLSI Dialogues.**

Elements of the TLSI

The TLSI has conducted its work through several channels:

1. A twice-yearly progressive dialogue series.

The Council has engaged TLSI members and outside participants from industry, academia, the national laboratories and the public sector in a series of progressive dialogues, each building on the results and findings of the preceding session. The dialogues are the foundation of the TLSI, bringing together America's senior technology leaders. Linked to each dialogue is a special report that disseminates a set of provocations, findings, and insights about innovation competitiveness. The reports also capture the content of the discussions.

2. CTO Thought Leadership

to tap the insights and experiences of hundreds of technology and research thought leaders, including the TLSI membership. In addition to a path-breaking CTO survey that sought to understand the changing landscape of global innovation and how various innovation stakeholders should collaborate and co-invest in America's future, the TLSI has pioneered two, recurring and critical, global "barometers" of innovation:

2015 Advanced Technology Initiative

[*Advanced technologies Initiative: Manufacturing and Innovation, Deloitte and Council on Competitiveness, 2015*](#)

Global Manufacturing Competitiveness Index

[*2013 Global Manufacturing Competitiveness Index, Deloitte and Council on Competitiveness, 2012*](#)

[*2016 Global Manufacturing Competitiveness Index, Deloitte and Council on Competitiveness, 2016*](#)

3. Cutting-edge, national and regional CTO-led initiatives and gatherings.

In addition to the nation's first-ever **State of Innovation Summit**, the TLSI regularly gathers C-suite luminaries and thought leaders to explore how science, technology and innovation are re-drawing the business landscape of the 21st century. TLSI leaders have:

- Catalyzed four national [American Energy & Manufacturing Competitiveness Summits](#) to generate new-to-the-world activities that have improved America's energy and manufacturing capabilities.

Goals of the TLSI

- To convene technology leaders from America's premier companies, universities, and national laboratories to understand technology investment drivers and strategies.
- To establish a new paradigm for collaboration between the public and private sectors to optimize America's investments in research, talent and technology.
- To identify critical technology and policy roadmaps to assure that the United States sustains the innovation and technology advantage required for national security and economic competitiveness.
- Developed the [National Engineering Forum \(NEF\)](#)—an effort to transform the way engineering is perceived, experienced and prioritized in the United States. Through nearly 19 regional dialogues across the country, the NEF is identifying concrete solutions for challenges facing the U.S. engineering enterprise: capacity, capability and competitiveness.
- Created the [Exploring Innovation Frontiers Initiative](#)—a series of four regional dialogues to: craft with national and regional stakeholders a transformational innovation action agenda that positions the United States as a global innovation leader for decades to come; inspire a larger movement to enhance U.S. competitiveness and economic growth by accelerating knowledge creation and the transfer of science and engineering research into market reality; and expand and improve public and private sector engagement in the innovation process.

4. **TLSI Working Groups** that have come together to put forward recommendations that would: accelerate innovation at labs and universities, reform key policies and regulations, strengthen education and training, extend the benefits of high performance computing, and educate policymakers and the public about the value of innovation. Several of the recommendations have already been acted upon.

Results

The TLSI has built a powerful coalition of the nation's top technology leaders. It has ignited a robust national conversation and identified public policies and private practices that would improve the speed and volume of technologies that move from lab to market, including technologies utilized to achieve government missions. The TLSI also has identified several grand challenges and strategic technologies that could help solve them.

On the policy front, the TLSI has contributed directly or indirectly to reform efforts on topics such as intellectual property, export controls, basic research, community colleges, manufacturing, immigration, STEM education, and high performance computing. The TLSI's engagement with the U.S. Department of Energy played a direct role in the department's effort to boost corporate collaboration with the national laboratories through the Agreements for Commercializing Technology (ACT). The ACT initiative was announced at the Council's National Manufacturing Competitiveness Summit in 2011.

Since its inception, the TLSI has been a powerful and innovative public-private partnership in an of itself—working with critical government leaders to generate new activities to improve America's innovation capabilities across the industrial base.

There have been many tangible outcomes from dozens of TLSI dialogues, working groups, regional meetings and national summits, including but not limited to:

1. Bolstering America's Manufacturing Competitiveness Intelligence through the creation of the nation's first-ever "Clean Energy Manufacturing Analysis Center".
2. Rebuilding America's Shared Manufacturing Innovation Infrastructure with nearly \$1 billion invested publicly and privately over the past 4 years, including:
 - Five Department of Energy related National Network of Manufacturing Innovation Institutes;
 - Two new Manufacturing Development Facilities; and
 - A new Energy Materials Network.

Current TLSI Co-Chairs



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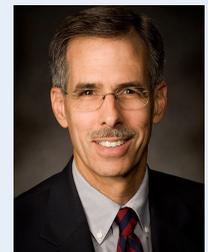
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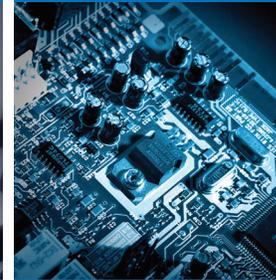
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Dr. John Tracy
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3. Unleashing National Laboratories to Advance Manufacturing Innovation by:
 - Proposing and helping to develop new, High Performance Computing for Energy, Manufacturing and Materials programs at the Department of Energy; and
 - Defining and launching a new Technologist in Residence Program for the national laboratory infrastructure.

TLSI Key Recommendations

Accelerating Innovation	Regulation / Policy	Talent	Innovation Outreach	High Performance Computing
				
<ol style="list-style-type: none"> 1. Define shared outcomes that motivate and coalesce teams. 2. Build communities of commercialization and entrepreneurialism. 3. Facilitate greater sharing of IP. 4. Create innovation-friendly policy environment. 5. Bridge gaps in the innovation-to-market pipeline. 	<ol style="list-style-type: none"> 1. Reform ITAR rules. 2. Retain highly-skilled immigrants educated in the United States. 3. Streamline and modernize the patent process. 4. Remove conflicts in regulations impacting research enterprise (IRS, ITAR, NSF, etc.). 	<ol style="list-style-type: none"> 1. Identify best community college practices and create model curriculums. 2. Expand training in the use of modeling and simulation. 3. Incentivize coop and internship programs for mature workers. 4. Create partnerships between stakeholders to establish these programs. 	<ol style="list-style-type: none"> 1. Develop messaging and reach out to target federal and state officials. 2. Create science and technology advisory boards for long-term policymaker education. 3. Promote programs that inspire students to pursue STEM and entrepreneurship. 4. Leverage advisory boards to speak with targeted media. 	<ol style="list-style-type: none"> 1. Expand business access to HPC. 2. Collaborate and compete globally to have best-of-breed capabilities. 3. Train more computer scientists. 4. Build exascale machine (1,000x faster) by end of decade.
 <p>Sample of TLSI Working Groups</p>				

TLSI Timeline



Dialogue 1: Change
The Changing Global Landscape for Technology Leadership

JUNE 22

Dialogue 3: Energize
Energizing Commercialization and Building the 21st Century Public-Private Collaboratory to Drive Strategic Technologies

JUNE 24

Dialogue 5: Optimize
Ensuring U.S. Leadership in Strategic Technologies

JULY 14

Dialogue 7: Adapt
Reforming the American Innovation System for a New Century of Leadership

JUNE 28

2009

2010

2011

2012

2013

NOVEMBER 9

Dialogue 2: Explore
Examining Further the Changing Landscape for Global Competitiveness and Exploring New Frontiers

NOVEMBER 5

Dialogue 4: Examine
Preliminary Findings and Recommendations from the TLSI Working Groups

OCTOBER 25

Dialogue 6: Resolve
Changing the U.S. Innovation Landscape—the Path from Words to Deeds

OCTOBER 22

Dialogue 8: Integrate
New Collaboration Dynamics at Home and Abroad





Dialogue 13
Forward

NOVEMBER 18

Dialogue 11: Cultivate

NOVEMBER 4

Dialogue 9: Coordinate
Advancing Global Innovation—
Challenges & Opportunities

JUNE 3

Dialogue 15
Beyond Moore's Law

OCTOBER 25

Dialogue 17: Connect
New Opportunities for
Partnership to Advance
America's Technology Strategy

NOVEMBER 8

2014

2015

2016

2017

OCTOBER 1

Dialogue 10: Educate
Educate—Strategies for Aligning
Technology Innovation, Higher
Education and Workforce
Development

MAY 26

Dialogue 14
Highlight Working Group
Findings

JUNE 9

Dialogue 12

JUNE 12

Dialogue 16: Reflect
Charting New Paths for
Innovation and Technology
Leadership



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