

# Making Impact

2015-2016



U.S. Council on  
Competitiveness

Celebrating 30 years of working  
to enhance America's competitiveness



## Letter from the Board

This year, we are celebrating the U.S. Council on Competitiveness' 30th anniversary. At the time of its founding in 1986, the biggest threat to U.S. competitiveness was our ability to keep pace with innovations coming from countries like Japan and Germany. Today, our competitors span the globe in a race to attract investment, talent, commercialize new ideas and catalyze advanced industries.

While the players may have changed, our mission has not. In this era of uncertainty and economic turbulence characterized by persistent low growth and productivity, and wage stagnation, the Council is developing and advocating its pro-growth, innovation action agenda for America's future prosperity. This policy agenda, coupled with our unique network of private-sector leaders representing a broad cross section of the economy, places the Council at the center of the national policy debate and ensures that three decades after our founding, our membership stands at the forefront of competitiveness thought leadership that translates into major national initiatives with tangible results.

Over the past year, the Council strengthened and launched public-private partnerships with key federal agencies, including the U.S. Department of Energy and the National Science Foundation (NSF). These collaborations ignited innovative new projects and programs across the country such as the *U.S. Department of Energy's High Performance Computing for Manufacturing Program* and *Technologist in Residence* initiative, both designed to enhance cooperation and spur advanced technology commercialization. At the same time, the



*Samuel R. Allen*

**Samuel R. Allen**  
Chairman and CEO, Deere & Company  
Chairman, U.S. Council on Competitiveness



*Mehmood Khan*

**Mehmood Khan**  
Vice Chairman and Chief Scientific Officer  
for Global Research and Development,  
PepsiCo, Inc.  
Industry Vice Chairman, U.S. Council  
on Competitiveness



*Michael M. Crow*

**Michael M. Crow**  
President, Arizona State University  
University Vice Chairman, U.S. Council  
on Competitiveness

Council's work with NSF continued to build upon the legacy of our groundbreaking National Innovation Initiative to explore the evolution of innovation in the United States and how best to maximize its potential with the broadest demographic possible.

Partnerships extended to the other end of Pennsylvania Avenue, as well. The Council helped create a new bipartisan policy platform in Congress by teaming up with Senators Chris Coons (D-DE) and Jerry Moran (R-KS) to launch the Senate Competitiveness Caucus. Caucus briefings on Capitol Hill featured members of the Council's Technology Leadership and Strategy Initiative and the release of two major Council reports—*Work: Thriving in a Turbulent, Technological and Transformed Global Economy* and *Advanced Technologies Initiative: Manufacturing and Innovation*. From testifying before the Senate to speaking on key competitiveness issues like advanced manufacturing, research funding and biosciences, the Council ensured its members' voices were being heard before the nation's top policymakers committed to America's competitive future.

The Council's message remains grounded in its cutting-edge, ongoing policy work spearheaded by the leadership and members of the Energy & Manufacturing Competitiveness Partnership, the Technology Leadership and Strategy Initiative and the High Performance Computing Advisory Committee. In addition, deep partnerships with longtime Council members help us understand the ongoing evolution in our innovation ecosystem and to promulgate new models to extend and maximize economic potential.

As we enter our next 30 years, the members of the U.S. Council on Competitiveness will continue to champion the tremendous potential and power of the U.S. economy propelled by talented, creative people. America retains significant competitive advantages: our entrepreneurial drive is unmatched; our colleges and universities are the envy of the world; our innovation ecosystem remains the gold standard.

By leveraging the Council's diverse, nonpartisan membership of industry, labor, academia and national labs, we can develop, advocate for and implement an ambitious competitiveness agenda that will grow America's economy and jumpstart productivity to create high-value jobs, spawn new industries and increase prosperity for all Americans.



*William P. Hite*

**William P. Hite**  
General President, United Association  
of Plumbers and Pipefitters  
Labor Vice Chairman, U.S. Council  
on Competitiveness



*Charles O. Holliday, Jr.*

**Charles O. Holliday, Jr.**  
Chairman, Royal Dutch Shell, plc  
Chairman Emeritus, U.S. Council on  
Competitiveness



*Deborah L. Wince-Smith*

**Deborah L. Wince-Smith**  
President & CEO  
U.S. Council on Competitiveness

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Participants in the February 18, 2016  
Greenville, SC, National Engineering Forum  
Regional Dialogue.

Photo Credit: Clemson University.

# News from the Board and Executive Committee

## Dr. Mehmood Khan Named Industry Vice Chairman



Dr. Mehmood Khan, PepsiCo's Vice Chairman and Chief Scientific Officer of Global Research and Development, joined the Council as its Industry Vice Chairman in April 2016. The Council's board unanimously approved his selection to one of its top leadership positions. His important contributions as an industry executive and researcher will help guide the Council over the next years as our nation works to grow the economy. A "career-long student," as he likes to describe himself, Dr. Khan will help drive the Council's research and policy positions as we look for ways to increase American prosperity.

## Mike Splinter Steps Down as Council's Industry Vice Chairman



Mike Splinter has been with the Council since 2009, serving on the board and leading the Council's policy agenda. As CEO of Applied Materials, Mr. Splinter's California-based company built the factories that make solar panels. Last year, Mr. Splinter retired as its chairman of the board.

"On behalf of the U.S. Council on Competitiveness, I want to thank Mike for his six years of leadership as the Council's Vice Chairman of Industry," said the Honorable Deborah L. Wince-Smith, President & Chief Executive Officer. "Through his Council work, Mike fought to make sure our nation wins the global competition for clean energy and its prize of thousands of high-paying jobs. At every event, he urged the U.S. to 'get in the game.'"

At its April meeting, the board commended Mr. Splinter in a Resolution of Appreciation.

# 2015 National Competitiveness Forum



*Mr. Samuel R. Allen, Chairman and CEO, Deere & Company, and Chairman, U.S. Council on Competitiveness addresses the 2015 National Competitiveness Forum Dinner attendees at the Benjamin Franklin Diplomatic Room, U.S. Department of State.*

The Council hosted the 2015 National Competitiveness Forum (NCF) at the Newseum in Washington, D.C., on December 4, 2015. NCF is a commanding platform for Council members and other thought leaders to engage in conversation, elaborate on ideas and set the competitiveness action agenda for the nation.

It started the night before, in the historic Benjamin Franklin Dining Room at the U.S. State Department. The Council honored Senators Chris Coons (D-DE) and Jerry Moran (R-KS), the co-chairs of the bipartisan Senate Competitiveness Caucus. Together, they recruited colleagues and held briefings to better understand how our nation's innovation capacity is inexorably linked to its prosperity and competitiveness.

At NCF, the Council released its *2015 Clarion Call* report card, grading U.S. policymakers on their progress in helping the nation reach its full economic potential. The report also directed nine questions to the presidential candidates. (See "Questions for the Candidates" on page 9.)

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The University of Toledo



**Top:** 2015 U.S. Council on Competitiveness Honoree, the Honorable Chris Coons, United States Senator (D-DE), accepting the award via a video message.

**Bottom left:** Dr. Santa J. Ono, Chancellor, University of British Columbia, and former President, University of Cincinnati.

**Bottom right:** Mr. Rodney "Rod" Makoske, Senior Vice President, Corporate Engineering, Technology, and Operations, Lockheed Martin.



A CNBC-moderated panel discussed national competitiveness trends, and attendees previewed the *Global Manufacturing Competitiveness Index*. The findings contained good news: By the year 2020, the United States is poised to overtake China in manufacturing competitiveness.

This esteemed group of senior leaders in attendance included Mr. Samuel R. Allen, Chairman and CEO, Deere & Company, and Chairman, U.S. Council on Competitiveness; Mr. Mario Longhi, President and CEO, United States Steel Corporation; Mr. Keith Nosbusch, Executive Chairman, Rockwell Automation, Inc.; Dr. Keoki Jackson, Vice President and Chief Technology Officer, Lockheed Martin; Dr. Michael M. Crow, President, Arizona State University; Dr. Gene D. Block, Chancellor, University of California, Los Angeles; Dr. Steven Ashby, Director, Pacific Northwest National Laboratory; and Mr. Sean McGarvey, President, North America's Building Trades Unions.

# 2016

A photograph of a man in a suit speaking at a podium during a dinner event in a grand hall. The hall has high ceilings with ornate decorations and large windows. The man is standing on a small stage, gesturing with his right hand. The audience is seated at round tables with white tablecloths, glasses, and plates. The lighting is warm and focused on the speaker.

## 30th Anniversary Celebration and National Competitiveness Forum

December 8-9  
Washington, D.C.



## Clarion Call

Our news-making *Clarion Call* is released at the National Competitiveness Forum. It's developed from over a decade of research, and it assesses the state of competitiveness, calling out critical trends, opportunities and challenges. And it grades policymakers on their progress. In the last *Competitiveness Report Card*, we handed out some tough grades. Next to the grades were the justifications and a Call to Action on how to improve.

## The Competitiveness Report Card



## Questions for the Candidates

In this important presidential election year, the Council has identified nine key questions that, when answered, define how each major candidate would approach the nation's critical competitiveness issues.

1. How will you, as President, put the country back on a sustainable fiscal path?
2. What steps would you take to generate sufficient economic activity and job creation to truly, fully employ Americans with better-paying jobs?
3. How would you prioritize sustained increases in federal research in a time of constrained budgets?
4. How will America fund the approximately \$3 trillion necessary to repair and modernize America's infrastructure?
5. What policies should be put into place to capitalize on the shale gas boom and further grow America's manufacturing capacity?
6. Is 4 percent annual economic growth achievable, and if so, how would you get the economy to grow more rapidly?
7. Would you support a policy granting a green card to any foreign graduate of a U.S. university?
8. What specific policies would you support to unleash the sector where a majority of job creation occurs in America: start-ups and businesses looking to scale up operations?
9. Given the link between average income and educational attainment, how can America ensure the greatest possible access to affordable higher education?

Thus far in this presidential campaign, candidates have barely scratched the surface on the issue of U.S. competitiveness. Recognizing that finding answers to today's competitiveness challenges requires asking the right questions, the Clarion Call put together its list for consideration by the candidates and is seeking their responses.



**Top:** Members of the Council's Executive Committee: Dr. William H. Goldstein, Director, Lawrence Livermore National Laboratory; Dr. Thomas Mason, Director, Oak Ridge National Laboratory; Dr. Gene Block, Chancellor, University of California, Los Angeles; Mr. William Bohnett, President, Whitecap Investments LLC; Dr. Michael M. Crow, President, Arizona State University, and University Vice Chairman, U.S. Council on Competitiveness; Mr. Samuel R. Allen, Chairman and CEO, Deere & Company, and Chairman, U.S. Council on Competitiveness; the Honorable Deborah L. Wince-Smith, President & CEO, U.S. Council on Competitiveness; Mr. Mario Longhi, President and CEO, United States Steel Corporation; Mr. James Phillips, Chairman and CEO, NanoMech, Inc.; Mr. Paul Yarossi, President, HNTB Holdings Ltd.; and Dr. Harris Pastides, President, University of South Carolina, release the **2015 Clarion Call for Competitiveness** at the National Competitiveness Forum in Washington, D.C., on December 4, 2015.

**Center left:** 2015 U.S. Council on Competitiveness Honoree, the Honorable Jerry Moran, Senator (R-KS), accepts the award via video message.

**Center right:** Dr. Michael Lovell, President, Marquette University; Dr. Carmela Ruffolo, Associate Vice President for Research and Innovation, Marquette University; and Dr. W. Randolph "Randy" Woodson, Chancellor, North Carolina State University.

**Bottom left:** Dr. Dimitri Kusnezov, Chief Scientist & Senior Advisor to the Secretary, National Nuclear Security Administration, U.S. Department of Energy; Dr. Steven Ashby, Director, Pacific Northwest National Laboratory; and Mr. Eli Levine, Acting Director, Clean Energy Manufacturing Initiative, U.S. Department of Energy.

**Bottom right:** Mr. Keith Nosbusch, Executive Chairman, Rockwell Automation, Inc.; the Honorable Deborah L. Wince-Smith, President & CEO, U.S. Council on Competitiveness; and the Honorable Tom Emmer, United States Congressman (R-MN).



**Top:** Mr. Samuel R. Allen, Chairman and CEO, Deere & Company, and Chairman, U.S. Council on Competitiveness; and the Honorable Deborah L. Wince-Smith, President & CEO, U.S. Council on Competitiveness, open the 2015 National Competitiveness Forum.

**Center:** Mr. Pierre Gauthier, Chairman and CEO, NAPEC; and Ms. Marilyn Pfeiffer, Director of Institutional Development, CRDF Global.

**Bottom:** The Honorable David T. Danielson, former Assistant Secretary for Energy Efficiency and Renewable Energy, U.S. Department of Energy; the Honorable Paul D. Tonko, United States Congressman (D-NY); and Ms. Caryn Mclelland, Deputy Special Representative for Commercial and Business Affairs, U.S. Department of State.

**Center:** Dr. Michael M. Crow, President, Arizona State University, and University Vice Chairman, U.S. Council on Competitiveness.

**Bottom:** Dr. Sethuraman "Panch" Panchanathan, Executive Vice President, ASU Knowledge Enterprise, and Chief Research and Innovation Officer, Arizona State University; the Honorable Deborah L. Wince-Smith, President & CEO, U.S. Council on Competitiveness; Dr. William H. Goldstein, Director, Lawrence Livermore National Laboratory; and Dr. Keoki Jackson, Vice President and Chief Technology Officer, Lockheed Martin.



**Top:** Mr. Samuel R. Allen, Chairman and CEO, Deere & Company, and Chairman, U.S. Council on Competitiveness; and Dr. Michael M. Crow, President Arizona State University, and University Vice Chairman, U.S. Council on Competitiveness.

**Center:** Ms. Jetta Wong, Director, Office of Technology Transitions, U.S. Department of Energy; the Honorable Deborah L. Wince-Smith, President & CEO, U.S. Council on Competitiveness; Mr. Chad Evans, Executive Vice President for Policy and Programs, U.S. Council on Competitiveness; and Ms. Eleanor Taylor, Chief of Staff to the Director, Argonne National Laboratory.

**Bottom:** Mr. Rodney "Rod" Makoske, Senior Vice President, Corporate Engineering, Technology, and Operations, Lockheed Martin; Mr. Adrian Cuadra, Staff to Senior Vice President, Corporate Engineering, Technology, and Operations, Lockheed Martin; Dr. Keoki Jackson, Vice President and Chief Technology Officer, Lockheed Martin; and Ms. Nicole Plair, Subcontract Program Manager, Lockheed Martin.

**Top:** Dr. Keoki Jackson, Vice President and Chief Technology Officer, Lockheed Martin; Mr. James Phillips, Chairman and CEO, NanoMech, Inc.; and Mr. William Bohnett, President, Whitecap Investments, LLC.

**Center:** Dr. S. Julio Friedmann, Senior Adviser for Energy Innovation, Lawrence Livermore National Laboratory, and former Principal Deputy Assistant Secretary for Fossil Energy, U.S. Department of Energy; the Honorable Deborah L. Wince-Smith, President & CEO, U.S. Council on Competitiveness; Dr. William H. Goldstein, Director, Lawrence Livermore National Laboratory; Ms. Dona L. Crawford, Senior Fellow, U.S. Council on Competitiveness, and former Associate Director, Computation, Lawrence Livermore National Laboratory; and Dr. Tomás Díaz de la Rubia, Director, Discovery Park, Purdue University.

**Bottom:** The Honorable Rebecca Blank, Chancellor, University of Wisconsin–Madison; Mr. Jeff Jefferies, Past President, IEEE-USA; and Mr. David Washburn, Executive Director, Michigan State University Foundation.



**Top:** Mr. Eamon Javers, Washington Correspondent, CNBC, in conversation with Mr. Samuel R. Allen, Chairman and CEO, Deere & Company, and Chairman, U.S. Council on Competitiveness.

**Center:** Mr. Eamon Javers, Washington Correspondent, CNBC, in conversation with Mr. Keith Nosbusch, Executive Chairman, Rockwell Automation, Inc.

**Bottom:** Mr. Jeff Jefferies, Past President, IEEE-USA; and Mr. Robert Reynolds, President and Chief Executive Officer, Putnam Investments.

**Top:** Mr. Mario Longhi, President and CEO, United States Steel Corporation.

**Center:** The Honorable Rebecca Blank, Chancellor, University of Wisconsin–Madison; Dr. Michael M. Crow, President, Arizona State University, and University Vice Chairman, U.S. Council on Competitiveness; Mr. James Phillips, Chairman and CEO, NanoMech, Inc.; and the Honorable Deborah L. Wince-Smith discuss the 2015 Clarion Call for Competitiveness.

**Bottom:** The Honorable G. Wayne Clough, former Secretary, The Smithsonian Institution, and President Emeritus, Georgia Institute of Technology; and Dr. Michael M. Crow, President, Arizona State University, and University Vice Chairman, U.S. Council on Competitiveness.



**Top:** Ms. Dona L. Crawford, Senior Fellow, U.S. Council on Competitiveness; and former Associate Director, Computation, Lawrence Livermore National Laboratory; Mr. Terrence "Terry" Urbanek, International Representative, United Association of Plumbers and Pipefitters; the Honorable Deborah L. Wince-Smith, President & CEO, U.S. Council on Competitiveness; Mr. Joseph Mayans, Legislative Correspondent, Office of Senator Moran (R-KS); Dr. Thomas Mason, Director, Oak Ridge National Laboratory; and Dr. S. Julio Friedmann, Senior Adviser for Energy Innovation, Lawrence Livermore National Laboratory, and former Principal Deputy Assistant Secretary for Fossil Energy, U.S. Department of Energy.

**Top:** Dr. Robin R. Murphy, Raytheon Professor of Computer Science & Engineering and Director, Center for Robot-Assisted Search and Rescue, Texas A&M University.

**Center:** Mr. James Phillips, Chairman and CEO, NanoMech, Inc.

**Center:** Mr. Gregory Glaros, Founder and CEO, SYNEXUS, Inc.

**Bottom:** Mr. Chad Evans, Executive Vice President for Policy and Programs, U.S. Council on Competitiveness; Dr. Gene Block, Chancellor, University of California, Los Angeles; Dr. Thomas Mason, Director, Oak Ridge National Laboratory; and Mr. Robert L. Reynolds, President and CEO, Putnam Investments.

**Bottom:** Mr. Peter James Meyers, Founder and President, Stand & Deliver Group.



**Top:** Dr. Keoki Jackson, Vice President and Chief Technology Officer, Lockheed Martin.

**Top:** Mr. Craig Giffi, Vice Chairman and U.S. Manufacturing Industry Leader, Deloitte, LLP.

**Center:** Mr. William Bates, Executive Vice President & Chief of Staff, U.S. Council on Competitiveness; Mr. Matthew G. Riddle, President and CEO, Walbro Engine Management LLC; and Dr. Mauro Borges Lemos, CEO, Companhia Energética de Minas Gerais (CEMIG).

**Center:** Dr. Steven Ashby, Director, Pacific Northwest National Laboratory; the Honorable Subra Suresh, President, Carnegie Mellon University; and the Honorable David T. Danielson, former Assistant Secretary for Energy Efficiency and Renewable Energy, U.S. Department of Energy.

**Bottom:** Ms. Randi Weingarten, President, American Federation of Teachers, AFL-CIO, releases key finding of the U.S. Council on Competitiveness report *Work*.

**Bottom:** The Honorable Rebecca M. Blank, Chancellor, University of Wisconsin–Madison; Mr. Nicholas T. Pinchuk, Chairman and CEO, Snap-on Incorporated; and Mr. Sean McGarvey, President, North America’s Building Trades Unions.

# Congressional Engagement

To break through the gridlock of a divided government, the U.S. Council on Competitiveness (Council) teamed up with Senators Chris Coons (D-DE) and Jerry Moran (R-KS) to launch the bipartisan Senate Competitiveness Caucus.

An op-ed headlined in *Roll Call* on June 10, 2015, announced the Caucus' mission: "Bringing Congress Together to Make America More Competitive in the 21st Century." Working with the Caucus, the Council's policy recommendations carry a stronger voice. They are the subject of congressional briefings in which Council members are able to articulate their views directly with lawmakers.

The Council's Technology Leadership Strategic Initiative (TLSI) briefed the Senate Competitiveness Caucus on U.S. competitiveness and global technology trends. A joint report from the Council and Deloitte titled *Advanced Technologies Initiative: Manufacturing and Innovation* was released. It provided important insights on U.S. and global innovation trends, and highlights the challenges faced by businesses in improving their technology competitiveness.



Ms. Michelle Drew Rodriguez, Center for Manufacturing Insights Leader, Deloitte Services LP; and Mr. Chad Evans, Executive Vice President for Policy and Programs, U.S. Council on Competitiveness, presented the report to U.S. Senators and congressional staff. The Honorable Deborah L. Wince-Smith, President & CEO, U.S. Council on Competitiveness, moderated a discussion on shared perspectives from leading U.S. innovators including: Dr. John T. Tracy, former Chief Technology Officer & Senior Vice President, Engineering, Operations, and Technology, The Boeing Company; Dr. J. Michael McQuade, Senior Vice President, Science and Technology, United Technologies Corporation; Ms. Dona L. Crawford, former Associate Director, Computation, Lawrence Livermore National Laboratory; and the Honorable David T. Danielson, former Assistant Secretary of Energy Efficiency and Renewable Energy, U.S. Department of Energy.

In January 2016, a Council team of leading educators and manufacturers gathered in the Russell Senate Office building where Caucus co-chair Senator Coons unveiled the Council's *Work* report. Following his remarks, Council-member panelists briefed the audience, pressing their case for Senate action in drafting legislation to close the skills gap. The *Work* report specifically called for a national skills agenda to improve our workforce's competitiveness.

Notable leaders in attendance included Dr. Elizabeth Stroble, President, Webster University, and Associate Professor of Engineering and Public Policy, Carnegie Mellon University; and Mr. Nicholas T. Pinchuk, Chairman and Chief Executive Officer, Snap-on Incorporated.

In just over a year, the Senate Competitiveness Caucus grew to 15 members from both sides of the aisle and is well on its way to becoming the premiere forum for bipartisan economic policy recommendations.





**Opposite page:** The Honorable Deborah L. Wince-Smith, President & CEO, U.S. Council on Competitiveness; Mr. Nicholas T. Pinchuk, Chairman and CEO, Snap-on Incorporated; and the Honorable Chris Coons, United States Senator (D-DE).

**Top right:** Dr. Elizabeth Stroble, President, Webster University; Dr. Phillip Singerman, Associate Director for Innovation and Industry Services, The National Institute of Standards and Technology; Dr. Erica Fuchs, Associate Professor of Engineering and Public Policy, Carnegie Mellon University; and Mr. Nicholas T. Pinchuk, Chairman and CEO, Snap-on Incorporated.

**Bottom:** The Honorable Deborah L. Wince-Smith, President & CEO, U.S. Council on Competitiveness; the Honorable David T. Danielson, former Assistant Secretary for Energy Efficiency and Renewable Energy, U.S. Department of Energy; Dr. John Tracy, former Chief Technology Officer and Senior Vice President of Engineering, Operations & Technology, The Boeing Company; Dr. J. Michael McQuade, Senior Vice President for Science & Technology, United Technologies Corporation; and Ms. Dona L. Crawford, Senior Fellow, U.S. Council on Competitiveness, and former Associate Director, Computation, Lawrence Livermore National Laboratory.



The Honorable Angus King, United States Senate (I-ME); and the Honorable Deborah L. Wince-Smith, President & CEO, U.S. Council on Competitiveness.

### Inspiring Senate Optimism

Soon after the release of the 2016 Global Manufacturing Competitiveness Index, Council president and CEO, the Honorable Deborah L. Wince Smith, testified before the U.S. Senate Committee on Energy and Natural Resources on the topic: "The Status of Innovation Technologies in Advanced Manufacturing."

Ms. Wince-Smith told of a bright manufacturing future and the "amazing things" happening in nanotechnology, bio manufacturing and digital manufacturing that are shaping new products and industries. Along with new technologies, the retooling of traditional industries like textiles is transforming the U.S. economy. "Energy productivity is really emerging as one of our competitive edges in developing clean energy," she said. "We're no longer thinking that it's just nice to do. We know that it's absolutely critical to our country's competitiveness."

On hearing the news, Senator Al Franken (D-MN) declared, "This makes me an optimist. Ms. Wince-Smith is talking about the future and the amazing things we're doing in advanced manufacturing."

Ms. Wince-Smith traveled to the Hill again to brief lawmakers on July 14, 2016. She joined a panel of college professors and former business executives, briefing lawmakers on advanced manufacturing communities and innovation ecosystems.

On July 28, 2016, members of the Council went to Capitol Hill to brief congressional staffers on the research-intensive U.S. biosciences industry. This sector's tremendous potential is facing increased competition globally. Before a large audience in the Rayburn House Office Building, William Bates, the Council's Executive Vice President and Chief of Staff opened the session. The event was part of a joint program between the American Society of Mechanical Engineers (ASME) and the House Manufacturing Caucus.

# A Network of Leaders



**Top:** Mr. Charles O. Holliday, Jr., Chairman, Royal Dutch Shell, plc, and Chairman Emeritus, U.S. Council on Competitiveness; the Honorable Chris Coons, United States Senate (D-DE); the Honorable Deborah L. Wince-Smith, President & CEO, U.S. Council on Competitiveness; and Mr. Samuel R. Allen, Chairman and CEO, Deere & Company, and Chairman, U.S. Council on Competitiveness.

**Center left:** Mr. Samuel R. Allen, Chairman and CEO, Deere & Company, and Chairman, U.S. Council on Competitiveness; and Dr. France A. Córdova, Director, National Science Foundation.

**Center right:** Dr. Paul J. Himmert, Distinguished Fellow, U.S. Council on Competitiveness; former Director, Sandia National Laboratories; and former President, Sandia Corporation; Dr. Gene Block, Chancellor, University of California, Los Angeles; Mr. Nicholas T. Pinchuk, Chairman and CEO, Snap-on Incorporated; and the Honorable Bart J. Gordon, Distinguished Fellow, U.S. Council on Competitiveness, Partner, K&L Gates LLP, and former United States Representative (TN).

**Center:** Mr. James K. Clifton, Chairman and CEO, Gallup, Inc.



**At left:** The Honorable Deborah L. Wince-Smith, President & CEO, U.S. Council on Competitiveness; Mr. Mario Longhi, President and CEO, United States Steel Corporation; Mr. James Phillips, Chairman and Chief Executive Officer, NanoMech, Inc.; and Mr. Paul Yarossi, President, HNTB Holdings Ltd.



**Top foreground:** Mr. James K. Clifton, Chairman and CEO, Gallup Inc.; Mr. William Bohnett, President, Whitecap Investments LLC; Dr. Gene Block, Chancellor, University of California, Los Angeles. **Background:** the Honorable Bart J. Gordon, Distinguished Fellow, U.S. Council on Competitiveness, Partner, K&L Gates LLP, and former United States Representative (TN); and Dr. Pradeep Khosla, Chancellor, University of California, San Diego.

**Center:** The Honorable Charles Rivkin, Assistant Secretary of State for Economic and Business Affairs, U.S. Department of State.

**Bottom:** Dr. Keoki Jackson, Vice President and Chief Technology Officer, Lockheed Martin; Mr. Mario Longhi, President and CEO, United States Steel Corporation; the Honorable Deborah L. Wince-Smith, President & CEO, U.S. Council on Competitiveness; and Mr. Rodney "Rod" Makoske, Senior Vice President, Corporate Engineering, Technology, and Operations, Lockheed Martin.

**Top:** Mr. Paul Yarossi, President, HNTB Holdings Ltd.; Mr. Mario Longhi, President & CEO, United States Steel Corporation; Dr. Mohammad A. Zaidi, Distinguished Fellow, Member, Strategic Advisory Board, Braemer Energy Ventures, and former Executive Vice President and Chief Technology Officer, Alcoa, Inc.; and Mr. William Bohnett, President, Whitecap Investments, LLC.

**Center:** Mr. Charles O. Holliday, Jr., Chairman, Royal Dutch Shell, plc, and Chairman Emeritus, U.S. Council on Competitiveness; the Honorable Chris Coons, United States Senate (D-DE); Mr. Samuel R. Allen, Chairman and CEO, Deere & Company, and Chairman, U.S. Council on Competitiveness; and Dr. France A. Córdova, Director, National Science Foundation.

**Bottom:** Mr. Terrence "Terry" Urbanek, International Representative, United Association of Plumbers and Pipefitters; Dr. Lloyd Jacobs, Distinguished Fellow, U.S. Council on Competitiveness, and President Emeritus, The University of Toledo; Mr. Chad Evans, Executive Vice President for Policy and Programs, U.S. Council on Competitiveness; and Dr. Pradeep Khosla, Chancellor, University of California, San Diego.

# A Network of Leaders



**Top:** Members of the Council Executive Committee at the 2016 Chairman's Dinner.

**Center left:** Dr. Mehmood Khan, Vice Chairman and Chief Scientific Officer for Global Research and Development, PepsiCo, Inc.

**Center middle:** Dr. Lloyd Jacobs, Distinguished Fellow, U.S. Council on Competitiveness, and President Emeritus, The University of Toledo; and Dr. Luis Proenza, Distinguished Fellow, U.S. Council on Competitiveness, and President Emeritus, University of Akron.

**Center right:** Mr. Craig Giffi, Vice Chairman and U.S. Manufacturing Industry Leader, Deloitte LLP; and Mr. Jay Hamilton, Senior Vice President, Communications & Public Affairs, U.S. Council on Competitiveness.

**At left:** Mr. James K. Clifton, Chairman and CEO, Gallup; Dr. Luis Proenza, Distinguished Fellow, U.S. Council on Competitiveness, and President Emeritus, University of Akron; and Mr. Mario Longhi, President and CEO, United States Steel Corporation.



**Top left:** Dr. Mehmood Khan, Vice Chairman and Chief Scientific Officer for Global Research and Development, PepsiCo, Inc.; and Dr. William H. Goldstein, Director, Lawrence Livermore National Laboratory.

**Top middle:** Dr. Mohammad A. Zaidi, Distinguished Fellow, U.S. Council on Competitiveness, Member, Strategic Advisory Board, Braemer Energy Ventures, and former Executive Vice President and Chief Technology Officer, Alcoa, Inc.; and Dr. Klaus Hoehn, Vice President, Advanced Technology and Engineering, Deere & Company.

**Top right:** Dr. Mehmood Khan, Vice Chairman and Chief Scientific Officer for Global Research and Development, PepsiCo, Inc.; and Dr. W. Randolph "Randy" Woodson, Chancellor, North Carolina State University.

**Center left:** Ms. Mary Snitch, Senior Staff, Industry Organizations, Lockheed Martin Space Systems Company; Mr. Nicholas T. Pinchuk, Chairman and Chief Executive Officer, Snap-on Incorporated; Dr. Keoki Jackson, Vice President and Chief Technology Officer, Lockheed Martin; Dr. Mehmood Khan, Vice Chairman and Chief Scientific Officer for Global Research and Development, PepsiCo, Inc.; Mr. Paul Yarossi, President, HNTB Holdings Ltd.

**Center right:** Mr. Nicholas T. Pinchuck, Chairman and Chief Executive Officer, Snap-on Incorporated; and Mr. Terrence "Terry" Urbanek, International Representative, United Association of Plumbers and Pipefitters.

**Bottom left:** Mr. William Bates, Executive Vice President and Chief of Staff, U.S. Council on Competitiveness; and Mr. Michael Waring, Executive Director, Federal Relations, The University of Michigan.



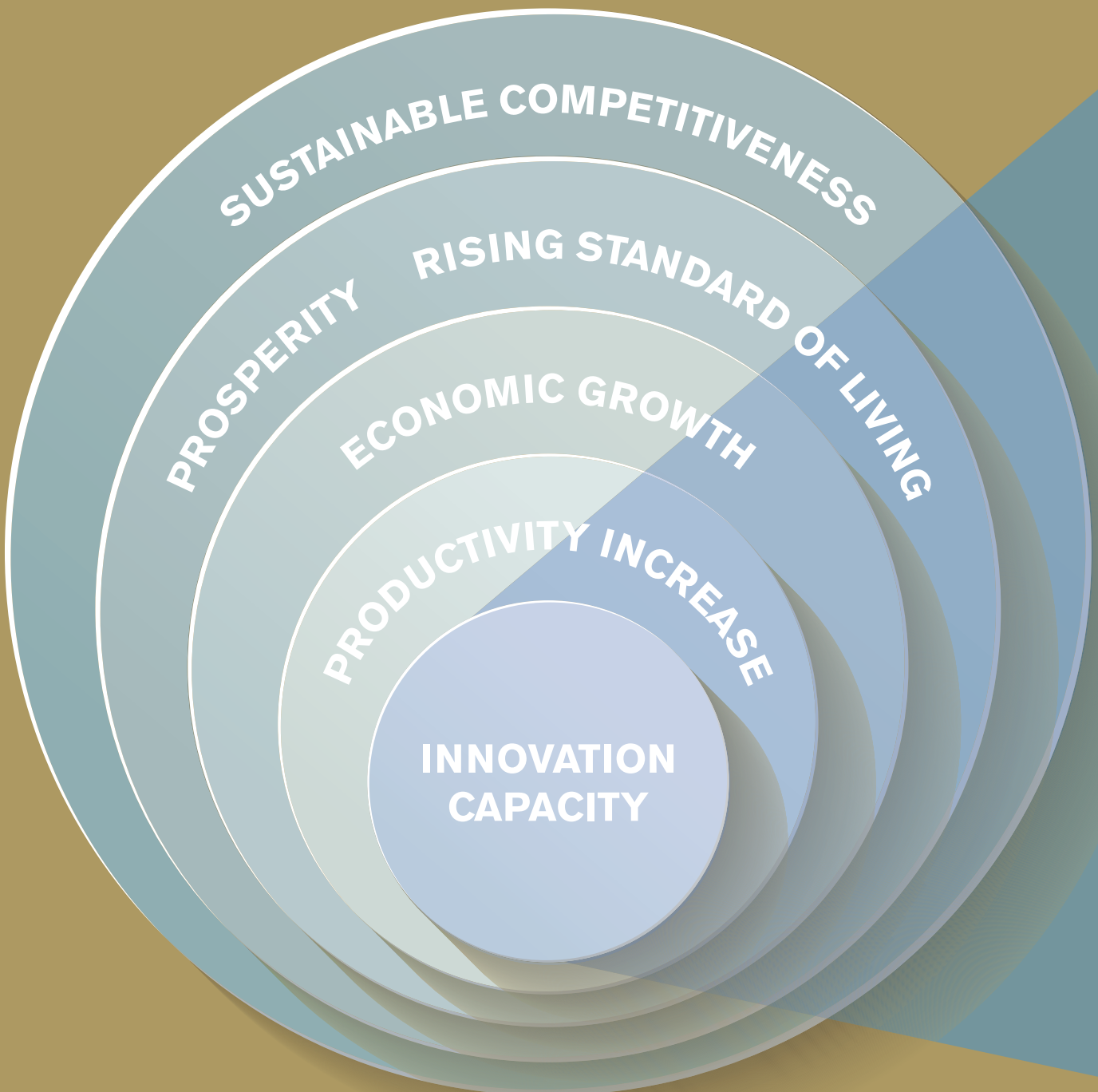
**Bottom middle:** Mr. Jeff Finkle, President and CEO, International Economic Development Council; and Mr. William Bohnett, President, Whitecap Investments, LLC.

**Bottom right:** Mr. Samuel R. Allen, Chairman and Chief Executive Officer, Deere & Company, and Chairman, U.S. Council on Competitiveness.

**Above:** Dr. Thomas Mason, Director, Oak Ridge National Laboratory.

# Our Initiatives, Partnerships and Goals

Founded in 1986, the U.S. Council on Competitiveness (Council) is a nonpartisan leadership organization of corporate CEOs, university presidents, labor leaders and national laboratory directors committed to driving U.S. productivity growth and increasing living standards for every American. The Council plays an important role in shaping America's future by setting an action agenda identifying emerging forces transforming the economy, and galvanizing stakeholders to act.



### INNOVATION

This dimension of the Council's workstream builds and accelerates the deployment of over-the-horizon, transformative invention and innovations models to drive long-term competitiveness.

**EIFI**  
Exploring Innovation Frontiers Initiative

**TLSI**  
Technology Leadership & Strategy Initiative

**HPCAC**  
High Performing Computing Advisory Committee

**NEF**  
National Engineering Forum

**U.S.-Brazil**  
Innovation Platform

### MANUFACTURING & ENERGY

This facet of the Council's portfolio focuses members on a rapidly shifting energy landscape; and on pathways to bolster dramatically American's energy, manufacturing and economic competitiveness.

**EMCP**  
Energy & Manufacturing Competitiveness Partnership

**AEMC**  
American Energy & Manufacturing Competitiveness Partnership

**AccEP2030**  
Accelerate Energy Productivity 2030

**GFCC**  
Global Federation of Competitiveness Councils

### GLOBAL PARTNERSHIPS

The Council recognizes that to compete and prosper nationally, the United States must engage globally through bilateral and multilateral partnerships.



## MANUFACTURING & ENERGY

# American Energy & Manufacturing Competitiveness Partnership

The American Energy and Manufacturing Competitiveness (AEMC) Partnership is a multi-year effort initiated between the Council and the U.S. Department of Energy, Office of Energy Efficiency and Renewable Energy's Clean Energy Manufacturing Initiative (CEMI). It is designed to bring together national leaders to address a rapidly shifting energy and manufacturing landscape.

*“AEMC created a new paradigm by recognizing, in an era of deep disruptions, that the public and private sector needed to come together to co-create a new future. What’s being designed is a new clean and renewable manufacturing future not solely driven by government or one private player.”*

**Dr. Keoki Jackson**

Vice President and Chief Technology Officer  
Lockheed Martin

Through nine regional dialogues and four national summits, the AEMC Partnership has obtained insights from industry, academia, national labs and government to drive U.S. competitiveness in manufacturing clean energy products, energy efficiency products and advanced manufacturing products.

### 2015 AEMC Summit

The 2015 AEMC Summit held September 15-16 in Washington, D.C., featured high-level discussions with senior leaders in the energy and manufacturing space. The Summit celebrated the achievements of pioneering

### 2015 AEMC Dialogues

In 2015, the AEMC Partnership executed three dialogues specifically focused on accelerating advanced and extreme materials manufacturing, and a fourth centered on efforts to strengthen the scale-up pipeline between prototype and first manufacturing.

The three accelerating advanced and extreme materials manufacturing dialogues revealed cross-cutting themes:

- First, materials qualification data from fundamental research must be organized and readily available.
- Second, there is a need to increase the awareness and accessibility of distinctive materials research infrastructure in publicly sponsored research laboratories for manufacturers.
- Third, there is a need to develop shared materials processing capabilities for scaling materials innovations—“from grams to kilograms and tons”—during the extended application and qualification processes.

The scaling innovation to manufacturing dialogue participants expressed confidence that a public-private partnership focused on bringing together startups, large corporate partners, manufacturers and investors—using tech accelerators as a convening platform—has the potential to pull new technologies through the commercialization pipeline while building sustainable relationships among the partners.



*The Honorable Deborah L. Wince-Smith, President & CEO, U.S. Council on Competitiveness; the Honorable Penny Pritzker, Secretary, U.S. Department of Commerce; and the Honorable David T. Danielson, former Assistant Secretary for Energy Efficiency and Renewable Energy, U.S. Department of Energy.*



business and research efforts and served as a platform for key announcements from the U.S. Department of Energy and others of new efforts to strengthen America's manufacturing and innovation ecosystems.

Participants include some of the most influential figures in energy and manufacturing, including the Honorable Penny Pritzker, Secretary, U.S. Department of Commerce; Senator Chris Coons (D-DE); Mr. Eric Spiegel, President and CEO, Siemens, USA; Ms. Amy Ericson, Global Business Leader, GE Water & Process Technologies, and former President, Alstom, USA; Ms. Gwenne Henricks, Chief Technology Officer and Vice President of Product Development and Global Technology, Caterpillar Inc.; and Mr. Mark C. McCullough, Executive Vice President—Generation, American Electric Power, Co., Inc.

**2016 AEMC Summit**

The 2016 American Energy & Manufacturing Competitiveness Summit, held May 12, focused attention on the design and build-out of a clean energy innovation infrastructure and a range of public-private partnerships based around the capabilities at the U.S. Department of Energy's national laboratories. It was hosted by Council member Mr. James B. Milliken, Chancellor, City University of New York.

In addition to supporting ongoing partnerships, the Summit delivered new public-private opportunities to promote energy efficiency, the adoption of clean energy technologies, increased clean technology manufacturing investment, economic growth and job creation. Specifically, the Summit highlighted the Northeast region's successes in catalyzing clean energy manufacturing and innovation, with a keynote speech by Mr. Richard Kauffman, Chairman, Energy & Finance for New York, Office of New York Governor Andrew Cuomo.



*“Millions of jobs and trillions of dollars in economic activity are going to occur through this global transition to a clean energy economy. If the United States can own this, it will be a bright future for our country.”*

**The Honorable David T. Danielson**  
Former Assistant Secretary for Energy Efficiency and Renewable Energy  
U.S. Department of Energy

The U.S. Department of Energy is reaching out to both national and regional manufacturing companies and offering its crown-jewel national labs with its extensive research capabilities. Since AEMC began four years ago, this private-public partnership has helped advance 3-D printing, supercomputing and carbon fiber research, all key ingredients toward bolstering overall manufacturing competitiveness in the United States.

**Dialogue 6: Accelerating Advanced Materials Manufacturing**

May 8, 2015  
Oregon State University's Food Innovation Center  
Portland, Oregon

- Co-hosts:
- Dr. Ed Ray, President, Oregon State University
  - Dr. Cynthia Powell, Director for the Office of Research, National Energy Technology Laboratory
  - Dr. S. Julio Friedmann, Senior Adviser for Energy Innovation, Lawrence Livermore National Laboratory; and former Principal Deputy Assistant Secretary for Fossil Energy, U.S. Department of Energy
  - Mr. Reuben Sarkar, Deputy Assistant Secretary for Transportation, Office of Energy Efficiency & Renewable Energy, U.S. Department of Energy
  - Dr. Mark Johnson, Director, Advanced Manufacturing Office, Office of Energy Efficiency & Renewable Energy, U.S. Department of Energy
  - Mr. Chad Evans, Executive Vice President for Policy and Programs, U.S. Council on Competitiveness

**Dialogue 7: Accelerating Advanced Materials Manufacturing**

June 25, 2015  
Advanced Photon Source at Argonne National Laboratory  
Lemont, Illinois

- Co-hosts:
- Dr. Peter Littlewood, Director, Argonne National Laboratory
  - Mr. David Mohler, Deputy Assistant Secretary, Clean Coal and Carbon Management, Office of Fossil Energy, U.S. Department of Energy
  - Mr. Reuben Sarkar, Deputy Assistant Secretary for Transportation, Office of Energy Efficiency & Renewable Energy, U.S. Department of Energy
  - Dr. Mark Johnson, Director, Advanced Manufacturing Office, Office of Energy Efficiency and Renewable Energy, U.S. Department of Energy
  - Mr. Chad Evans, Executive Vice President for Policy and Programs, U.S. Council on Competitiveness

**Dialogue 8: Accelerating Advanced Materials Manufacturing**

August 17, 2015  
Annenberg Presidential Conference Center at the George Bush Library  
College Station, Texas

- Co-hosts:
- Dr. M. Katherine Banks, Vice Chancellor and Dean of Engineering; and Director, Texas A&M Engineering Experiment Station, Texas A&M University
  - Mr. Regis Conrad, Director, Division of Advanced Energy Systems, U.S. Department of Energy
  - Mr. Reuben Sarkar, Deputy Assistant Secretary for Transportation, Office of Energy Efficiency & Renewable Energy, U.S. Department of Energy
  - Dr. Mark Johnson, Director, Advanced Manufacturing Office, Office of Energy Efficiency and Renewable Energy, U.S. Department of Energy
  - The Honorable Deborah L. Wince-Smith, President & CEO, U.S. Council on Competitiveness

**Dialogue 9: Scaling Innovation to Manufacturing**

June 23, 2015  
U.S. Council on Competitiveness  
Washington, D.C.

- Co-hosts:
- The Honorable Deborah L. Wince-Smith, President & CEO, U.S. Council on Competitiveness
  - The Honorable David T. Danielson, former Assistant Secretary, Energy Efficiency and Renewable Energy, U.S. Department of Energy

# AEMC Partnership 2015 Summit



**Top left:** Dr. Jeff Koplow, Research Scientist, Sandia National Laboratories; Dr. David Weiss, Vice President Engineering/R&D, Eck Industries, Inc.; Dr. Jared Schwede, Project Lead—Cyclotron Road, Lawrence Berkeley National Laboratory; Ms. Victoria Gonzalez, Managing Partner, Nidus Partners L.P. and CEO, AeroValve LLC; and the Honorable David T. Danielson, former Assistant Secretary of Energy Efficiency and Renewable Energy, U.S. Department of Energy.

**Top right:** Mr. Javier Saade, Associate Administrator, Office of Investment and Innovation, U.S. Small Business Administration; Ms. Jean Redfield, President and CEO, NextEnergy; Mr. Mark McCall, Executive Director, Loan Programs Office, U.S. Department of Energy; Mr. Andrew Garman, Founder and Managing Partner, New Venture Partners LLC; and Ms. J.J. Raynor, Special Assistant to the President for Economic Policy, National Economic Council, The White House.

**Center left:** Mr. Bob Cusack, Editor-in-Chief, The Hill; Mr. David Szczupak, Executive Vice President—Global Product Organization, Whirlpool Corporation; Mr. Eric Spiegel, President and CEO, Siemens, USA; Mr. Ajit Manocha, Co-Chairman of the Board, POET Technologies; and Ms. Amy Ericson, Global Business Leader, GE Water & Process Technologies and former President, Alstom, USA.

**Center right:** Mr. Chad Evans, Executive Vice President for Policy and Programs, U.S. Council on Competitiveness.

**At left, top:** Dr. Ray O. Johnson, Distinguished Fellow, U.S. Council on Competitiveness, and Executive in Residence, Bessemer Venture Partners; Mr. Ed Morris, Vice President, National Center for Defense Manufacturing and Machining, and Director, America Makes—National Additive Manufacturing Innovation Institute; Major General Nick Justice, Director, PowerAmerica; and Dr. Craig Blue, CEO, Institute for Advanced Composites Manufacturing Innovation.

**At left, bottom:** Lockheed Martin Exhibit at AEMC 2015 Summit.





**Top:** The Honorable David T. Danielson, former Assistant Secretary of Energy Efficiency and Renewable Energy, U.S. Department of Energy; Dr. Jud Virden, Jr., Associate Laboratory Director for Energy & Environment, Pacific Northwest National Laboratory; Dr. R. Ramesh, Associate Laboratory Director, Energy Technologies Area, Lawrence Berkeley National Laboratory; Dr. Martin Keller, Laboratory Director, National Renewable Energy Laboratory; and Dr. Bill Farris, Associate Laboratory Director for Innovation, Partnering and Outreach, National Renewable Energy Laboratory.

**Center:** Dr. J. Kelly Kissock, Professor and Chair, Department of Mechanical and Aerospace Engineering/Renewable and Clean Energy, University of Dayton, and Director, University of Dayton Industrial Assessment Center; Mr. Dave Foster, Senior Advisor, Office of the Secretary, U.S. Department of Energy; Dr. Celeste Carter, Lead Program Director, Advanced Technological Education (ATE) Program, The National Science Foundation; Dr. John Muth, Deputy Director and Chief Technology Officer, PowerAmerica; and Dr. Robert Ivester, Deputy Director, Advanced Manufacturing Office, Office of Energy Efficiency and Renewable Energy, U.S. Department of Energy.

**Bottom:** Dr. Mark Johnson, Director, Advanced Manufacturing Office, Office of Energy Efficiency and Renewable Energy, U.S. Department of Energy; Dr. William Peter, Deputy Director, Manufacturing Demonstration Facility, Oak Ridge National Laboratory; Dr. Alexander H. King, Director, Critical Materials Institute (CMI), The Ames Laboratory; and Dr. William H. Goldstein, Director, Lawrence Livermore National Laboratory.

**Top:** The Honorable Deborah L. Wince-Smith, President & CEO, U.S. Council on Competitiveness; and the Honorable Chris Coons, United States Senator (D-DE).

**Center:** Mr. Reuben Sarkar, Deputy Assistant Secretary for Transportation, Office of Energy Efficiency and Renewable Energy, and Executive Director, Clean Energy Manufacturing Initiative, U.S. Department of Energy; Dr. Laurie Leshin, President, Worcester Polytechnic Institute; Dr. Charles F. Kahle, II, Chief Technology Officer and Vice President, Coating R&D, PPG Industries; Ms. Gwenne Henricks, Chief Technology Officer and Vice President of Product Development and Global Technology, Caterpillar Inc.; and Dr. S. Julio Friedmann, Senior Adviser for Energy Innovation, Lawrence Livermore National Laboratory, and former Principal Deputy Assistant Secretary for Fossil Energy, U.S. Department of Energy.

**Bottom:** Mr. Phillip Singerman, Associate Director for Innovation and Industry Services, National Institute of Standards and Technology (NIST); Ms. Linda Stuntz, Partner, Stuntz, Davis and Staffier, P.C.; Mr. William Bohnett, President, Whitecap Investments; Ms. Kathy Calvin, President and CEO, United Nations Foundation; and Mr. Mark C. McCullough, Executive Vice President—Generation, American Electric Power, Co., Inc.

# AEMC Partnership 2016 Summit



**Top:** The Honorable David T. Danielson, former Assistant Secretary for Energy Efficiency and Renewable Energy, U.S. Department of Energy; Mr. Richard Kauffman, Chairman, Energy & Finance for New York, Office of New York Governor Andrew Cuomo; and the Honorable Deborah L. Wince-Smith, President & CEO, U.S. Council on Competitiveness.

**Bottom:** The Honorable Deborah L. Wince-Smith, President & CEO, U.S. Council on Competitiveness; Dr. Jill Engel-Cox, Director, Clean Energy Manufacturing Analysis Center, National Renewable Energy Laboratory; and Mr. Craig Giffi, Vice Chairman and U.S. Manufacturing Industry Leader, Deloitte LLP.

**Top:** Mr. James B. Milliken, Chancellor, City University of New York.

**Bottom:** Mr. Chad Evans, Executive Vice President for Policy and Programs, U.S. Council on Competitiveness; Mr. Peter Rothstein, President, Northeast Clean Energy Council; Mr. Frank van Mierlo, Chief Executive Officer, 1366 Technologies; Ms. Dolores Kruchten, Vice President of Eastman Business Park, Eastman Kodak; and Mr. Leonard Poveromo, Executive Director, Composite Prototyping Center, Long Island Forum for Technology.



**Top:** Dr. Mark Johnson, Director, Advanced Manufacturing Office, Office of Energy Efficiency and Renewable Energy, U.S. Department of Energy; Dr. Craig Blue, Chief Executive Officer, Institute for Advanced Composites Manufacturing Innovation; Mr. Dean Jones, Global Director—Electric Drives Service Group, Advanced Technology & Engineering, Deere & Company; Mr. John Milton-Benoit, Senior Director, Advanced Manufacturing & Service Technologies Program, United Technologies Research Center; Mr. Jeffrey (Jeff) Wilcox, Vice President for Corporate Engineering and Program Operations, Lockheed Martin; and Mr. Andy Wilson, Director, Strategic Business Development, X-FAB Texas.

**Center:** The Honorable David T. Danielson, former Assistant Secretary for Energy Efficiency and Renewable Energy, U.S. Department of Energy; Ms. Peg Folta, Deputy Program Manager for Energy and HPC4Mfg Program Director, Lawrence Livermore National Laboratory; Dr. Will Joost, Technology Manager, Vehicle Technologies Office, U.S. Department of Energy; Dr. Sebastien Lounis, Co-Founder and Communications and Marketing, Cyclotron Road; and Dr. William H. Peter, Director, Manufacturing Demonstration Facility for Additive Manufacturing, Oak Ridge National Laboratory.

**Bottom:** The Honorable Deborah L. Wince-Smith, President & CEO, U.S. Council on Competitiveness.

## MANUFACTURING & ENERGY

# Accelerate Energy Productivity 2030

In 2015, the U.S. Council on Competitiveness (Council) launched a series of activities in partnership with the Alliance to Save Energy (ASE) and U.S. Department of Energy Office of Energy Policy and Systems Analysis (EPSA) to gather support, develop strategies and build a private-sector-driven roadmap necessary to double the United States' energy productivity by 2030.

These efforts followed the late-2014 launch of the Accelerate Energy Productivity 2030 partnership by the Honorable Ernest J. Moniz, Secretary, U.S. Department of Energy; the Council; and ASE.

A series of dialogues culminated in the Accelerate Energy Productivity 2030 Summit, held on September 16, 2015 in Washington, D.C., and brought together leadership from industry, academia, government and the non-profit space to raise awareness and share findings with stakeholders. Most importantly, Secretary Moniz unveiled the *Accelerate*



*The Honorable Ernest J. Moniz, Secretary, U.S. Department of Energy.*

*Energy Productivity 2030: A Strategic Roadmap for American Energy Innovation, Economic Growth, and Competitiveness* (Roadmap). This document identifies a number of critical pathways to double the nation's overall energy productivity by 2030, including recommendations for businesses; federal, state, and local governments; universities and community colleges; and individual consumers. The Roadmap also communicates the direct, long-lasting benefits of improving energy productivity: lowering energy bills for every American, creating new jobs, driving economic growth, building a more competitive manufacturing and industrial base, and delivering greater prosperity for every American in the coming decades.

There are demonstrated, proven opportunities in every part of our economy to improve energy productivity. New analysis shows how energy productivity can contribute to economic growth.

The Dialogues in 2015 centered on understanding approaches and challenges associated with advancing energy productivity.

### Emerging Opportunities in the Transportation Sector and Built Environment

February 4, 2015  
Raleigh, North Carolina

North Carolina State University Chancellor W. Randolph "Randy" Woodson hosted this kick-off dialogue at North Carolina State University's James B. Hunt Jr. Library. Participants focused on improving energy productivity in our nation's most energy consuming industries by implementing innovative urban design and transportation practices.

### Energy Productivity and Smart Power Systems

April 13, 2015  
Redmond, Washington

Global Business Leader, GE Water & Process Technologies, and former Alstom, USA President, Ms. Amy Ericson, and Pacific Northwest National Laboratory Director Dr. Steve Ashby hosted this second dialogue at the Alstom Facility. It centered on pathways to an energy productive future through next generation technology and effective public-private partnerships.

### Growing U.S. Industrial Competitiveness through Smart Manufacturing Processes

July 15, 2015  
Maplewood, Minnesota

3M leadership hosted the third and final AccEP2013 dialogue in the 3M Innovation Center. This conversation highlighted unique strategies to drive energy productivity in the U.S. manufacturing sector.



**Top:** The Honorable Deborah L. Wince-Smith, President & CEO, U.S. Council on Competitiveness; the Honorable Ernest J. Moniz, Secretary, U.S. Department of Energy; and the Honorable David T. Danielson, former Assistant Secretary for Energy Efficiency and Renewable Energy, U.S. Department of Energy.

**Center:** Mr. Al Stayman, Senior Professional Staff Member, Minority, Senate Energy & Natural Resources Committee; Mr. Jason Miller, Special Assistant to the President and Deputy Director, National Economic Council; and Dr. Jonathan Pershing, Principal Deputy Director, EPSA, U.S. Department of Energy.

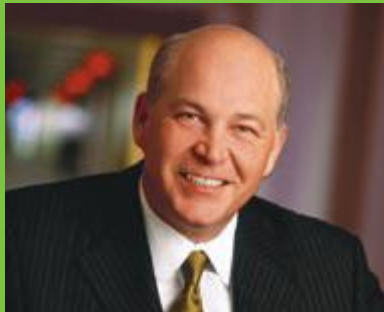
The Council partnered with the U.S. Department of Energy and ASE on a series of webinars in April 2016 with the goal to examine industry transformations and policy strategies in the context of energy productivity. Each webinar featured presentations from business and government experts on a range of topics, including: building technologies and finance; smart grid and smart manufacturing; and transportation and water. The outcomes of the webinars informed an executive roundtable led by senior staff from EPSA to review, offer comments and recommendations on the drafting of the second installment of the U.S. Department of Energy's *Quadrennial Energy Review*.



**Top:** Dr. M. Duane Nellis, former President, Texas Tech University; Dr. David Friedman, Acting Assistant Secretary for Energy Efficiency and Renewable Energy, U.S. Department of Energy; and Dr. James P. Clements, President, Clemson University.

**Center:** Ms. Judi Greenwald, Deputy Director for Climate, Environment, and Energy Efficiency and Senior Advisor to the Secretary for Climate Change, Office of Energy Policy and Systems Analysis, U.S. Department of Energy; Mr. Jeff Bureson, Vice President of Systems Planning, Southern Company; Dr. Jud Virden, Associate Laboratory Director—Energy & Environment, Pacific Northwest National Laboratory; and Mr. Jim West, Assistant General Manager, Snohomish PUD.

**Bottom:** Dr. Mark Johnson, Director of the Office on Advanced Manufacturing, U.S. Department of Energy; Mr. Jigar Shah, Executive Director, Institute for Industrial Productivity; Ms. Jane Palmieri, Business President, Building & Construction, The Dow Chemical Company; and Ms. Barri Gurau, Senior Engineer for Corporate Energy Initiatives, Lockheed Martin.

**MANUFACTURING & ENERGY****Energy & Manufacturing Competitiveness Partnership****Co-Chairs**

*Mr. Christopher Crane, Chief Executive Officer, Exelon Corporation; Mr. Jeff Fettig, Chairman and Chief Executive Officer, Whirlpool Corporation; Dr. William H. Goldstein, Director, Lawrence Livermore National Laboratory; and the Honorable Subra Suresh, President, Carnegie Mellon University.*

Building upon more than a decade of leadership on energy and manufacturing policy, the U.S. Council on Competitiveness' (Council) Energy and Manufacturing Competitiveness Partnership (EMCP) catalyzes private-sector-led research and action around the nexus of energy and manufacturing.

By leveraging partnerships between the public and private sectors to identify market barriers and unleash a new wave of energy productivity and clean energy manufacturing, the EMCP will capitalize on a distinctly modern breed of energy abundance characterized by new generations of research, talent and technology.

This initiative approaches the country's diverse industrial landscape as a network of distinct but interdependent productive sectors, each with its own challenges and opportunities. To this aim, the EMCP is organized into a series of sector studies hosted around the nation by members of the EMCP Steering Committee. Each sector study dialogue is designed to gather subject matter expertise on key sectors of the U.S. economy and explore the Council's four cross-cutting pillars—infrastructure, technology, investment and talent. Together, the common challenge and opportunity threads observed across these discrete sectors will be synthesized into tangible policy recommendations for the next administration and policymakers in general.

**Year in Review**

On March 3, 2015, the Council officially launched the EMCP at a dialogue hosted by Dr. William Powers, former President, The University of Texas at Austin. The C-suite conversation among 40 executives and experts from industry, academia, the national laboratories and labor catalyzed the private sector-driven effort to deepen understanding of a convergence between two forces essential to America's long-term productivity and prosperity: energy and manufacturing.

The Steering and Advisory Committees convened in November and December, respectively, to discuss the pathway forward for the EMCP sector studies and to gauge interest in and to prioritize those sector studies that would take place in Phase 1. Industry Co-Chair Mayo A. Shattuck, III, Executive Chairman, Exelon Corporation, stepped down after serving the group with Mr. Jeff Fettig. The Council also welcomed new leaders to the EMCP. Mr. Christopher Crane, Chief Executive Officer, Exelon Corporation, was named as the new industry co-chair; and the Honorable Subra Suresh, President, Carnegie Mellon University, was named as the new university co-chair. Mr. Crane and Dr. Suresh join national laboratory co-chair Dr. William H. Goldstein, Director, Lawrence Livermore National Laboratory, and industry co-chair Mr. Jeff M. Fettig, Chairman and Chief Executive Officer, Whirlpool Corporation.





## Water & Manufacturing

In February 2016, the Council launched the first phase of regional sector studies with a dialogue focusing on water and manufacturing. It was co-chaired by Dr. Michael Lovell, President, Marquette University and new Council member, Mr. Ajita Rajendra, Chairman & CEO, A. O. Smith Corporation. This first dialogue brought together more than 50 experts in the water and manufacturing industries for a closed-door conversation at Marquette University in Milwaukee. Common challenges were identified as well as opportunities relating to water, energy and manufacturing in the United States.

## Advanced Materials

Hosted at the Council's offices in Washington, D.C., and co-chaired by Dr. Laurie Leshin, President of Worcester Polytechnic Institute and Dr. Aziz Asphahani, President of QuesTek Innovations, LLC, the April 12, 2016 dialogue focused on challenges and opportunities regarding the design, production and scaling of advanced materials to accelerate the transition from discovery to manufacturing.

## Biosciences

In late July, EMCP members gathered for a dialogue on what is an emerging sector for both the Council and the country—biosciences and the nation's innovation ecosystem for biosciences. As global demands for food, feed, fiber and fuel continue to rise, solutions to meet this global need must be met within increasing constraints and unpredictability, reinforcing the need to make newer product offerings even more sustainable.

Biosciences are driving U.S. innovation in sustainable energy, chemical engineering, agriculture and food production. The meeting on July 27 preceded a briefing on Capitol Hill the next day, in which representatives from Council members Pacific Northwest National Laboratory and Lawrence Berkeley National Laboratory spoke to lawmakers on the applications for bioscience technologies.

## Recommendations to the President and Congress

These sector studies will culminate in an action plan that will outline steps America needs to take in order to capture the competitiveness opportunity at the nexus of energy and manufacturing. Identifying near-term policies and actions, as well as long-term priorities, this Action Plan will serve to inform the Council's *2016 Clarion Call for Competitiveness*.

*Ms. Jessica Lovingood, Policy Analyst, U.S. Council on Competitiveness; Mr. Chris Mustain, Vice President for Innovation Policy & Programs, U.S. Council on Competitiveness; Dr. Kevin Anderson, Senior Fellow for Product Development & Engineering, Mercury Marine; Dr. Kevin Zeik, General Manager for Research, United States Steel Corporation; Dr. Surya Kalidindi, Professor of Mechanical Engineering, Georgia Institute of Technology; Mr. Tim Avampato, Technology Program Business Development Manager, Eaton Corporation; Mr. Greg Morin, Director of Strategy and Innovation, Argonne National Laboratory; Mr. Adam Khan, Founder & CEO, AKHAN Semiconductor; Dr. Bogdan Vernescu, Vice Provost for Research (ad interim), Worcester Polytechnic Institute; Mr. Rustom K. Mody, Vice President & Chief Engineer, Baker Hughes; Dr. David Furrer, Senior Fellow Discipline Lead, Pratt & Whitney; Ms. Katie Sarro, Senior Policy Director for Energy & Manufacturing Initiatives; U.S. Council on Competitiveness, Dr. Jim Roberto, Associate Laboratory Director of Science & Technology Partnerships, Oak Ridge National Laboratory; Dr. Bhima Sastri, Program Manager of Advanced Combustions & Fuel Cells, U.S. Department of Energy; Dr. Aziz Asphahani, CEO, QuesTek Innovations, LLC; Dr. David Zaziski, Director of Government Affairs and Business Development, Siluria Technologies; Dr. Glenn Fox, Associate Director of Physical and Life Sciences Directorate, Lawrence Livermore National Laboratory; the Honorable Deborah L. Wince-Smith, President & CEO, U.S. Council on Competitiveness; Dr. Danielle Cote, Assistant Research Professor, Worcester Polytechnic Institute; Dr. Laurie Leshin, President, Worcester Polytechnic Institute; Dr. William Joost, Technology Development Manager, U.S. Department of Energy; and Mr. Carl Shurboff, Chief Operations Officer, AKHAN Semiconductor.*

# Energy & Manufacturing Competitiveness Partnership

## Water and Manufacturing Dialogue

February 16, 2016, Milwaukee, WI



**Top foreground:** Dr. Joan Rose, Homer Nowlin Chair in Water Research, Michigan State University; Dr. Douglas Rotman, Program Director, Lawrence Livermore National Laboratory; and Dr. Martin Keller, Director, National Renewable Energy Laboratory. **Background:** Ms. Margaret Cope, Water Policy Intern, A. O. Smith Corporation; and Ms. Jessica Lovingood, Policy Analyst, U.S. Council on Competitiveness.

**Center left:** Mr. Deon Van As, Vice President of Technical and Packaging Services, MillerCoors; Dr. Jeanne Hossenlopp, Vice President Research & Innovation, Marquette University; Dr. Sujeet Chand, Senior Vice President and Chief Technology Officer, Rockwell Automation, Inc.; Ms. Deborah McKeithan-Gebhardt, President, Tamarack Petroleum Company, Inc.

**Center right:** Dr. Michael Lovell, President, Marquette University.

**Bottom right:** Mr. Ajita Rajendra, Chief Executive Officer, A. O. Smith Corporation; Dr. Kris Ropella, Opus Dean of Opus College of Engineering, Marquette University.

**Bottom left:** Mr. William Bates, Executive Vice President & Chief of Staff, U.S. Council on Competitiveness.

## Advanced Materials Dialogue Washington, D.C., April 12, 2016



**Top:** Dr. Kevin Anderson, Senior Fellow for Product Development & Engineering, Mercury Marine; Dr. David Zaziski, Director of Government Affairs and Business Development, Siluria Technologies; Dr. Glenn Fox, Associate Director of Physical and Life Sciences Directorate, Lawrence Livermore National Laboratory; Dr. Tresa Pollock, Alcoa Professor of Materials, University of California, Santa Barbara; Dr. Mark Johnson, Director of the Advance Manufacturing Office, U.S. Department of Energy; Dr. Aziz Asphahani, Chief Executive Officer, QuesTek Innovations, LLC; Mr. William Bates, Executive Vice President & Chief of Staff, U.S. Council on Competitiveness; Dr. Laurie Leshin, President, Worcester Polytechnic Institute; and Dr. Jim Roberto, Associate Laboratory Director of Science & Technology Partnerships, Oak Ridge National Laboratory.

**Bottom:** Dr. Kevin Anderson, Senior Fellow for Product Development & Engineering, Mercury Marine; Dr. Bogdan Vernescu, Vice Provost for Research (ad interim), Worcester Polytechnic Institute; and Dr. Diana Lados, Associate Professor of Mechanical Engineering, Worcester Polytechnic Institute.

**Bottom:** Dr. Diran Apelian, Alcoa-Howmet Professor of Engineering, Worcester Polytechnic Institute; Dr. Gregory Olson, Walter P. Murphy Professor of Materials Science & Engineering, Northwestern University; Dr. Zi-Kui Liu, Professor of Materials Science & Engineering, Penn State University; Mr. Adam Khan, Founder & CEO, AKHAN Semiconductor; and Dr. William Joost, Technology Development Manager, U.S. Department of Energy.

## Advancing Biosciences Dialogue

Washington, D.C., July 27, 2016



**Top:** Dr. Jay Keasling, Associate Laboratory Director, Lawrence Berkeley National Laboratory; Mr. Don Medley, Head of Government and Community Relations, Lawrence Berkeley National Laboratory; Mr. William Bates, Executive Vice President & Chief of Staff, U.S. Council on Competitiveness; Mr. Hugh Welsh, President & General Counsel, DSM North America; Mr. Chad Evans, Executive Vice President, U.S. Council on Competitiveness; and Dr. Malin Young, Deputy Director of Science and Technology, Pacific Northwest National Laboratory.

**Bottom:** Dr. Parag Chitnis, Deputy Director of the National Institute of Food and Agriculture (NIFA), USDA; Dr. Paul Gilna, Director of BioEnergy Science Center and Deputy Director of Biosciences Division, Oak Ridge National Laboratory; Dr. Daniel Peterson, Director of the Institute for Genomics, Biocomputing & Biotechnology, Mississippi State University.

**Top:** Dr. Thomas Reed, Founder and Chief Science Officer, Intrexon Corporation; Dr. Rina Singh, Senior Policy Director, Biotechnology Industry Organization (BIO); Dr. Jay Keasling, Associate Laboratory Director, Lawrence Berkeley National Laboratory; Mr. Don Medley, Head of Government and Community Relations, Lawrence Berkeley National Laboratory; Mr. William Bates, Executive Vice President & Chief of Staff, U.S. Council on Competitiveness.

**Bottom:** Dr. Daniel Peterson, Director of the Institute for Genomics, Biocomputing & Biotechnology, Mississippi State University; Dr. Robbie Barbero, Assistant Director for Biological Innovation, Office of Science and Technology Policy (OSTP); Dr. Mary Maxon, Biosciences Area Principal Deputy, Lawrence Berkeley National Laboratory; Dr. Sharlene Weatherwax, Associate Director of Science for Biological and Environmental Research (BER), U.S. Department of Energy Office of Science; Dr. Ken Turteltaub, Division Leader of the Biosciences and Biotechnology Division, Lawrence Livermore National Laboratory; and Dr. Anup Singh, Director of Biological & Engineering Sciences, Sandia National Laboratories.

## MANUFACTURING & ENERGY

# Benchmarking Global Manufacturing Competitiveness

*“Made in the USA is making a big comeback. Manufacturing is sustainable, smart, safe and surging—and America will lead the world in this transformation.”*

The Honorable Deborah L. Wince-Smith  
President & CEO  
U.S. Council on Competitiveness

In March, the Council and Deloitte co-released the *2016 Global Manufacturing Competitiveness Index (GMCI)*. The survey of 500 global manufacturing executives is considered the preeminent measurement for the state of competitiveness among manufacturing nations. The recent report has the United States in the second position, but leapfrogging China to become the top manufacturing country in the world by 2020. The report continues to make global news.



### Major highlights of the Global Manufacturing Competitiveness Index include:

#### United States projected to take No. 1 spot by end of decade.

- The United States improved its ranking from 4th in 2010 to 2nd in this year's study, and is expected to reach No. 1 by 2020.
- As the United States invests heavily in talent and technology, the nation ranks highest as an advanced manufacturing economy. It performs higher than its peers with a greater share of high skill and technology in exports compared to labor productivity measurements as GDP.
- The United States made itself a global leader in research and development (R&D) activities by investing more dollars and establishing the presence of top-notch universities, R&D talent and venture capital.

#### North America and Asia Pacific become regional clusters of strength.

- The two regions are expected to dominate the competitive landscape in the next four years. All three North American countries (United States, Canada and Mexico) in today's top 10 remain there in the 2020 outlook, and five Asia Pacific nations (China, Japan, South Korea, Taiwan and India) factor into the study's top 10 in 2020.
- The United States stands out as the anchor for the North American region, with the highest level of manufacturing investments, a strong energy profile, and high-quality talent, infrastructure and innovation. Canada's low trade barriers, tariff-free zone and investments in sectors key to its growing high-tech manufacturing future along with Mexico's 40 free trade agreements, low labor costs and close proximity to the United States round out the region.
- The dominant Asia Pacific countries of China, Japan and South Korea are driven by talent and innovation, and along with emerging newer powerhouses, such as Singapore and Taiwan, strengthen the region with a focus on high-tech exports. This region also houses the "Mighty Five" and five of the top 10 countries in current or future GMCI rankings.

**INNOVATION****Exploring Innovation Frontiers Initiative**

*The Honorable Deborah L. Wince-Smith, President & CEO, U.S. Council on Competitiveness; Dr. C. Michael Cassidy, President, Georgia Research Alliance; Dr. France A. Córdova, Director, National Science Foundation; Dr. G.P. "Bud" Peterson, President Georgia Institute of Technology; and Ms. Hala Modellmog, President, Metro Atlanta Chamber, at the Launch of the Exploring Innovation Frontiers Initiative.*

Exploring Innovation Frontiers Initiative (EIFI) is a national effort to anticipate the next generation of innovation models that will drive U.S. competitiveness.

By understanding the changes rippling through the U.S. innovation ecosystem, the Council, supported by the National Science Foundation and its members, will:

- Craft a transformational innovation action agenda that positions the United States as a global innovation leader for decades;
- Catalyze 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-private collaborations in the innovation process.

**Year in Review**

The Council launched the EIFI on June 9, 2015 in Atlanta with a national dialogue co-hosted by Dr. G.P. "Bud" Peterson, President, the Georgia Institute of Technology; Mr. C. Michael Cassidy, President and CEO, Georgia Research Alliance; and Ms. Hala Modellmog, President and CEO, Metro Atlanta Chamber. The day-long dialogue featured keynote remarks from Dr. France A. Córdova, Director, National Science Foundation; and Dr. Kim Wilcox, Chancellor, University of California, Riverside. The Atlanta dialogue encouraged leaders to consider the societal implications of the U.S. innovation ecosystem, with participants directly addressing the issue of diversity in the STEM fields and innovation's impact on the middle class.

On November 23, 2015, Dr. Kim Wilcox, Chancellor, University of California, Riverside hosted the EIFI Southwest Regional Dialogue. This Dialogue focused on the issue of talent. The UC Riverside sits at the forefront of the demographic changes redefining the nation's innovation landscape. A roundtable discussion centered on developing a more holistic approach to inclusivity in the talent pipeline—accounting for socioeconomic, ethnic and geographic differences. Echoing sentiments expressed in Atlanta, Riverside participants spoke of the importance of developing new partnerships to build national innovation capacity.



*Mr. Michael van Ter Sluis, former Vice President for Innovation Program and Policy, U.S. Council on Competitiveness; Dr. Michael Pazzani, Vice Chancellor, Research and Economic Development, University of California, Riverside; Dr. Pramod Khargonekar, Vice Chancellor for Research, University of California, Irvine, and former Assistant Director for the Directorate of Engineering, National Science Foundation; the Honorable Deborah L. Wince-Smith, President & CEO, U.S. Council on Competitiveness; Dr. Kim Wilcox, Chancellor, University of California, Riverside; Mr. Chad Evans, Executive Vice President for Policy and Programs, U.S. Council on Competitiveness; and Ms. Grace Wang, Acting Assistant Director for the Directorate of Engineering, National Science Foundation.*

## The Exploring Innovation Frontiers Initiative



## Outlook

The Council plans to continue exploring new models for innovation and uncovering challenges to the innovation ecosystem by convening additional dialogues in hotspots of innovation excellence, where regions continue to maximize their innovation capacity and utilize their distinct

strengths. Findings from the conversations across the country will inform the Council's 30th anniversary agenda and be a focus in our Call to Action for the next president.

# Exploring Innovation Frontiers Initiative

## National Launch Dialogue

Atlanta, GA, June 9, 2015



**Top:** Audience Participants at the EIFI National Launch Dialogue in Atlanta, GA.

**Center left:** Mr. Chad Evans, Executive Vice President for Policy and Programs, U.S. Council on Competitiveness; and Mr. Andrew R. Garman, Founder and Managing Partner, New Venture Partners.

**Center right:** Dr. Ileana Arias, Principal Deputy Director of CDC/ATSDR, Center for Disease Control and Prevention; Dr. Paul Himmert, President and Laboratories Director, Sandia National Laboratories; Dr. Mark Little, former Senior Vice President, Director of GE Global Research; Mr. Rod Makoske, Senior Vice President of Corporate Engineering, Technology, and Operations, Lockheed Martin; and Dr. Pramod Khargonekar, Vice Chancellor for Research, University of California, Irvine, and former Assistant Director—Directorate of Engineering, National Science Foundation.

**At left:** Mr. Mark Lytle, Vice Chancellor for Economic Development, Board of Regents—University System of Georgia; Dr. Greg Hyslop, Chief Technology Officer, The Boeing Company, and Senior Vice President of Boeing Engineering, Test & Technology; Dr. Stephen Cross, Executive Vice President for Research, Georgia Institute of Technology; Mr. Al Bunshaft, President and CEO, Dassault Systèmes Americas; and Dr. Judy Genshaft, President, University of South Florida.



## Southwest Regional Dialogue

Riverside, CA, November 23, 2015



**Top:** Participants in the November 23, 2016, EIFI Dialogue at University of California, Riverside.

**Center left:** Dr. Leslie A. Hickle, Vice President of New Business Opportunities and Project Management, BioAtla, LLC.

**Center middle:** Dr. Leo Chalupa, Vice President for Research, The George Washington University; and Dr. Kim Wilcox, Chancellor, University of California, Riverside.

**Center right:** Mr. Chad Evans, Executive Vice President for Policy and Programs, U.S. Council on Competitiveness.

**At right:** Dr. J. Michael Cassidy, President, Georgia Research Alliance.



## INNOVATION

## Technology Leadership &amp; Strategy Initiative

## Co-Chairs



*Dr. Klaus Hoehn, Vice President, Advanced Technology and Engineering, Deere & Company; Dr. Greg Hyslop, Chief Technology Officer, The Boeing Company and Senior Vice President of Boeing Engineering, Test & Technology; and Dr. Keoki Jackson, Vice President and Chief Technology Officer, Lockheed Martin.*

The United States has a long history of leadership in new technologies, products, processes and jobs that contribute to innovation-based economic growth and prosperity.

As global competition increases and barriers to innovation continue to fall, the Council's Technology Leadership & Strategy Initiative (TLSI) provides fertile ground for members to produce and participate in more productive American and global research partnerships, and share methods to preserve and invigorate the nation's technology leadership—a core driver of national productivity over the past half-century.

The TLSI, co-chaired by Dr. Klaus Hoehn, Vice President, Advanced Technology and Engineering, Deere & Company; Dr. Greg Hyslop, Chief Technology Officer, The Boeing Company, and Senior Vice President of Boeing Engineering, Test & Technology; and Dr. Keoki Jackson, Vice President and Chief Technology Officer, Lockheed Martin, consists of 40+ Chief Technology Officers from America's premier companies identifying and analyzing technology trends, opportunities, and challenges facing the country's technology leadership; facilitating partnerships between industry, university, government, and national laboratories to accelerate innovation across the U.S. research and development landscape; and improving the nation's capacity for commercialization through investment in research and research infrastructure.

### Year in Review

This past year presented a distinct opportunity for technology leadership to assess current challenges and opportunities in order to strategically guide the nation toward a more competitive future. The United States occupies a transforming landscape—shaped by changes in innovation, new models of collaboration, disruption and shifting demographics—that require rethinking and retooling to navigate successfully. TLSI Dialogue 13, U.S. Competitiveness and Global Technology Trends, was an opportunity for leadership to specifically discuss how the TLSI can empower its participants and the nation at large to remain versatile and competitive in a global economy.

Dialogue 13 identified historically low levels of federal investment in research and development (R&D) as a primary threat to the future of U.S. innovation. Reflecting on the 19th century contributions of Dr. Vannevar Bush and Dr. Joseph Schumpeter, TLSI leadership affirmed that the federal government must make strategic investments in R&D that make possible over-the-horizon discoveries and sustainable, long-term economic growth. Disturbing trends, such as the bifurcation of the workforce and wage stagnation, undermine public support for federal investment in innovation—yet the need to invest in our national innovation enterprise is at an all-time high.

TLSI members continued to identify talent as the primary driver of U.S. technological leadership. Effective STEM education in primary and secondary schools must be coupled with reforms at the highest levels of academia, such as enabling international graduate students and post-docs to stay in the United States. Reflecting on the extent of shared interests across industry, academia and our national labs, discussants reiterated the necessity of strong partnerships like TLSI to make the strategic case for maintaining technological leadership on an increasingly competitive world stage.

In May 2016, at Dialogue 14, TLSI members focused on an initiative this year to develop an actionable recommendation agenda to boost U.S. innovation capacity for the next president and incoming administration. They prioritized two critical areas for recommendation development: “Talent” and “Incentivizing Investments in Innovation.”

### Changes at the Top

TLSI leadership evolved this past year with Dr. Klaus Hoehn, Vice President, Advanced Technology and Engineering, Deere & Company, continuing as co-chair. Joining him as new co-chairs are Dr. John Tracy, Chief Technology Officer & Senior Vice President, Engineering, Operations and Technology, The Boeing Company; and Dr. Keoki Jackson, Vice President and Chief Technology Officer, Lockheed Martin. After Dr. Tracy retired, Dr. Greg Hyslop, Chief Technology Officer of The Boeing Company and Senior Vice President of Boeing Engineering, Test & Technology, joined as co-chair.

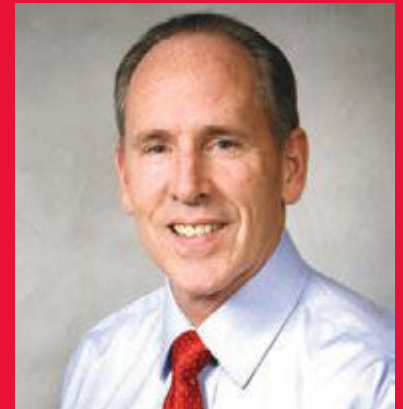
Three former co-chairs are assuming new roles as Emeritus members of TLSI after announcing their retirements. They are: Dr. Ray O. Johnson, Distinguished Fellow, U.S. Council on Competitiveness, and Executive in Residence, Bessemer Venture Partners; Dr. Mark M. Little, former Senior Vice President & Chief Technology Officer, GE Global Research; and Dr. John Tracy, former Chief Technology Officer & Senior Vice President, Engineering, Operations and Technology, The Boeing Company. The Council is very grateful for their sustained leadership and dedication.

### Outlook

The goal for the TLSI over the coming months is to take the initial insights, perspectives and recommendations from the TLSI gatherings throughout 2016. In the midst of an important election cycle, TLSI will articulate a national technology strategy that will provide both parties with recommendations aimed at a bipartisan objective of increasing living standards of all Americans.

The TLSI will convene virtually over the course of 2016 with the goal of compiling all insights, perspectives and recommendations from the dialogues to craft a concrete set of recommendations to underpin the Council's overall 30th Anniversary Clarion Call.

### Emeritus Co-Chairs



*Dr. Ray O. Johnson, Distinguished Fellow, U.S. Council on Competitiveness, Executive in Residence, Bessemer Venture Partners; Dr. Mark M. Little, Senior Vice President & Chief Technology Officer, General Electric Company and Director, GE Global Research; and Dr. John Tracy, Chief Technology Officer & Senior Vice President, Engineering, Operations and Technology, The Boeing Company.*

# Technology Leadership & Strategy Initiative

## Meeting

Washington, D.C., November 16, 2015



**Top left:** Dr. John Tracy, former Chief Technology Officer and Senior Vice President of Engineering, Operations & Technology, The Boeing Company; the Honorable Deborah L. Wince-Smith, President & CEO, U.S. Council on Competitiveness; and Dr. Klaus Hoehn, Vice President, Advanced Technology and Engineering, Deere & Company.

**Top right:** Dr. Robie Samanta Roy, Vice President, Technology and Innovation, Lockheed Martin; and Mr. Andrew Garman; Founder & Managing Partner, New Venture Partners.

**Center left:** Dr. Spiros Dimolitsas, Senior Vice President for Research and Chief Technology Officer, Georgetown University; and the Honorable Deborah L. Wince-Smith, President & CEO, U.S. Council on Competitiveness.

**Center right:** Ms. Michelle Drew Rodriguez, Center for Manufacturing Insights Leader, Deloitte Services LP; and Ms. Joann Michalik, Director of Supply Chain and Manufacturing, Deloitte Consulting LLP.

**At right:** Mr. Chad Evans, Executive Vice President for Policy and Programs, U.S. Council on Competitiveness; and Dr. John Tracy, former Chief Technology Officer and Senior Vice President of Engineering, Operations & Technology, The Boeing Company.



## Meeting

Washington, D.C., May 26, 2016



**Top:** The Honorable Deborah L. Wince-Smith, President & CEO, U.S. Council on Competitiveness; Dr. John Tracy, former Chief Technology Officer and Senior Vice President of Engineering, Operations & Technology, The Boeing Company; and Dr. Klaus Hoehn, Vice President, Advanced Technology and Engineering, Deere & Company, lead the May 26, 2016, TLSI Dialogue.

**Center:** The TLSI Working Group on Talent meet to discuss prioritizing America's workers and families—present and future—as the first priority of a national innovation agenda during the May 26, 2016, TLSI Dialogue.

Mr. Michael Bernstein, Senior Policy Director, Innovation Policy and Programs, U.S. Council on Competitiveness; and Dr. David Williams, Dean, College of Engineering, The Ohio State University.

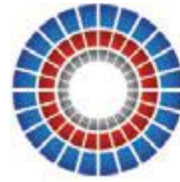
**INNOVATION****National Engineering Forum**

To compete in a globalized world, the United States will require a workforce of engineers and innovators capable of solving the grand challenges facing the nation. As technology grows increasingly pervasive in modern life, the United States faces an imperative to remain one step ahead of the three major challenges to its engineering enterprise: capacity, capability and competitiveness (3C's).

In 2012, Lockheed Martin, in partnership with the Council, launched the National Engineering Forum (NEF). Its mission is to:

- Find solutions to the engineering challenges of capacity, capability and competitiveness—the 3C's—in alignment with National Academy of Engineering's Grand Challenges for Engineering;
- Identify actions the U.S. engineering community can take to ensure our nation's continued security and prosperity; and
- Raise awareness of the role of engineers in Americans' daily lives and chart the future of engineering in the United States.

NEF has traveled across the country to gain insight into the regional challenges and national trends affecting local engineering communities. And in 2014, the NEF movement expanded to amplify the voices of engineering students and young professionals through a series of conversations with the next generation of U.S. engineers—NEF Generation (NEFGen).



**NATIONAL  
ENGINEERING  
FORUM**

**Year in Review**

Through the national network of Council members, NEF engaged in five regional dialogues to develop a more comprehensive understanding of the challenges facing the U.S. engineering enterprise.

**NEF Regional Dialogues**

- February 19, 2015: Phoenix, Arizona, hosted by Dr. Michael M. Crow, President, Arizona State University.
- May 6, 2015: Madison, Wisconsin, hosted by Mr. Keith Nosbusch, Executive Chairman, Rockwell Automation, Inc., and Dr. Ian Robertson, Dean, College of Engineering, the University of Wisconsin-Madison.
- November 9, 2015: Orlando, Florida, hosted by Dr. John C. Hitt, President, University of Central Florida.
- February 2, 2016: Stillwater, Oklahoma, hosted by Dr. V. Burns Hargis, President, Oklahoma State University.
- February 18, 2016: Greenville, South Carolina, hosted by Dr. James P. Clements, President, Clemson University.

**NEFGen**

Parallel to the 2015 NEF regional dialogues, NEFGeneration (NEFGen) offered a space for engineering students and early-career professional engineers to engage with the NEF movement. This community is the future of engineering, and they enthusiastically address the 3C's. NEFGen meet-ups are held in select locations, and participants interact through social media, including Twitter and Instagram.

**NEF Engagement**

- Twitter followers increased more than 40 percent @NatlEngForum; and
- NEF Instagram @nefgeneration and #IAmAnEngineer campaign regularly mentioned in social media.

## NEF Dialogue Movement



### NEFGen Meet-Ups

- February 28, 2015: Tempe, Arizona, hosted by Arizona State University.
- April 21, 2015: Columbus, Ohio, hosted by The Ohio State University.
- May 6, 2015: Madison, Wisconsin, hosted by the University of Wisconsin-Madison.
- February 17, 2016: Clemson, South Carolina, hosted by Clemson University.

In its four-year history, NEF has brought together more than 1,500 executive-level leaders from industry, academia, national labs, non-profits, and federal, state, and local governments. Shared insights and experiences from the nation's engineering enterprise constitute a distinct competitive advantage for American engineering, and lessons learned from NEF will continue to inform the Council's efforts to set an action agenda to drive U.S. competitiveness. NEF will release a comprehensive and final report of its major findings and recommendations.

Visit the NEF website for a synopsis of each dialogue at [nationalengineeringforum.com](http://nationalengineeringforum.com).

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# National Engineering Forum

## Phoenix, AZ Regional Dialogue February 19, 2015

Photo credit: Andy DeLisle / Arizona State University



**Top:** Mr. Chad Evans, Executive Vice President for Policy and Programs, U.S. Council on Competitiveness; Ms. Meagan Campion, External Engineering Advocacy, Lockheed Martin; Dr. Sethuraman "Panch" Panchanathan, Senior Vice President of Knowledge Enterprise Development, Arizona State University; Mr. Douglas L. Davis, Vice President, General Manager—Internet of Things Group, Intel Corporation; Dr. Michael M. Crow, President, Arizona State University, and University Vice Chairman, U.S. Council on Competitiveness; and the Honorable Deborah L. Wince-Smith, President & CEO, U.S. Council on Competitiveness.

**Bottom:** Dr. Michael M. Crow, President, Arizona State University, and University Vice Chairman, U.S. Council on Competitiveness.

**Top:** Dr. Sethuraman "Panch" Panchanathan, Senior Vice President of Knowledge Enterprise Development, Arizona State University.

**Bottom:** Mr. Douglas L. Davis, Vice President, General Manager—Internet of Things Group, Intel Corporation.



## Madison, WI Regional Dialogue May 6, 2015

Photo credit: Brett Stepanik



**Top:** Mr. Keith Nosbusch, Executive Chairman, Rockwell Automation, Inc.; the Honorable Deborah L. Wince-Smith, President & CEO, U.S. Council on Competitiveness; Mr. Jeffrey (Jeff) Wilcox, Vice President for Corporate Engineering and Program Operations, Lockheed Martin; Dr. Ian Robertson, Dean, College of Engineering—University of Wisconsin—Madison; Ms. Meagan Campion, External Engineering Advocacy, Lockheed Martin; and Mr. Chad Evans, Executive Vice President for Policy and Programs, U.S. Council on Competitiveness.

**Bottom:** Dr. Carmela Ruffolo, Associate Vice President for Research and Innovation, Marquette University; the Honorable Deborah L. Wince-Smith, President & CEO, U.S. Council on Competitiveness; and Mr. Chad Evans, Executive Vice President for Policy and Programs, U.S. Council on Competitiveness.

## Orlando, FL Regional Dialogue November 9, 2015

Photo credit: Alvida Groom Photography



**Top:** Mr. Dan Burton, Senior Manager, Lockheed Martin; Mr. Chad Evans, Executive Vice President for Policy and Programs, U.S. Council on Competitiveness; Ms. Meagan Campion, External Engineering Advocacy, Lockheed Martin; Mr. Albert Manero, Director, Limbitless Solutions; and Ms. Tia Over, Vice President and Chief Strategy Officer, The Mathews Group.

**Bottom left:** Dr. Timothy Kotnour, Director, Engineering Leadership & Innovation Institute, University of Central Florida.

**Bottom right:** Dr. John C. Hitt, President, University of Central Florida.

## Stillwater, OK Regional Dialogue February 2, 2016

Photo credit: OSU Marketing



*Dr. Paul Tikalsky, Dean, College of Engineering, Architecture and Technology, Oklahoma State University; Mr. David Hager, Chairman and CEO, Devon Energy; and Dr. V. Burns Hargis, President, Oklahoma State University.*



*Dr. Robert Whiteley, Professor, Head and Bartlett Chair of Engineering, Oklahoma State University; Mr. Tim Haddican, CEO, Red Bluff Resources; Mr. Tom Hill, III, CEO, Kimray Corporation; Mr. Seth Cleary, Student, Oklahoma State University; Mr. Michael Bernstein, Senior Policy Director, Innovation Policy and Programs, U.S. Council on Competitiveness; Mr. Ed Robben, Senior Vice President and Chief Information Officer, Fossil Group; and Dr. Charles Bunting, Associate Dean of Research, Oklahoma State University.*



*Mr. Greg Bradshaw, Senior Vice President, Lambert Construction; Mr. Doug Knudtson, Chief Operating Officer, Maxcess International; Dr. Dan Fisher, Department Head Professor, Albert H. Nelson, Jr. Chair, Mechanical and Aerospace Engineering, Oklahoma State University; Mr. Lyndon C. Taylor, Executive Vice President and General Counsel, Devon Energy; Dr. Ray O. Johnson, Distinguished Fellow, U.S. Council on Competitiveness, and Executive in Residence, Bessemer Venture Partners; Mr. Chad Evans, Executive Vice President for Policy and Programs, U.S. Council on Competitiveness; Mr. Logan Kunka, Student, Oklahoma State University; Brad Boles, President, Wilco Machine & Fabrications; and Mr. Mark Brewer, Chief Information Officer, Seagate Technology.*

## Greenville, SC Regional Dialogue February 18, 2016

Photo credit: Clemson University



*Mr. Ameet Vaghela, Program Manager, Functional Integration, Lockheed Martin; Ms. MaryBeth Oyer, Director, Workforce Collaboration and Outreach, Lockheed Martin; Dr. Anand K. Gramopadhye, Professor & Dean of the College of Engineering, Computing and Applied Sciences, Clemson University; Mr. Jeffrey (Jeff) Wilcox, Vice President for Corporate Engineering and Program Operations, Lockheed Martin; the Honorable Deborah L. Wince-Smith, President & CEO, U.S. Council on Competitiveness; Dr. James P. Clements, President, Clemson University; Ms. Meagan Campion, External Engineering Advocacy, Lockheed Martin; and Mr. Chad Evans, Executive Vice President for Policy and Programs, U.S. Council on Competitiveness.*



*Mr. Chad Evans, Executive Vice President for Policy and Programs, U.S. Council on Competitiveness; Mr. Kurt Goodwin, Director of Advanced Manufacturing Works, General Electric; Mr. David Stafford, Executive Vice President of Human Resources, Michelin North America; and Mr. Clark Gillespy, President, Duke Energy South Carolina.*



*Mr. Keith Young, Director of Composites Technology, The Boeing Company.*

## INNOVATION

# High Performance Computing Advisory Committee

### Co-Chairs



*Dr. Patricia Falcone, Deputy Director, Science and Technology, Lawrence Livermore National Laboratory; Dr. J. Michael McQuade, Senior Vice President, Science and Technology, United Technologies Corporation; and the Honorable Steven Koonin, Distinguished Fellow, U.S. Council on Competitiveness, Director, Center for Urban Science and Progress, and Professor, Information, Operations & Management Sciences, Leonard N. Stern School of Business, New York University.*

The Council's High Performance Computing Advisory Committee (HPCAC) works to increase national competitiveness through the transformational use of advanced computing.

The HPCAC convenes national leaders from industry, academia and national laboratories to collaborate, make recommendations and spur action to enable Americans to leverage high performance computing (HPC) more effectively. Supercomputers are an essential tool for industrial innovation, national security, and pushing the leading edge of virtually every scientific discipline.

### Changes at the Top

There was a change of leadership this past year with the addition of co-chair Dr. Patricia Falcone, Deputy Director, Science and Technology, Lawrence Livermore National Laboratory (LLNL). Dr. Falcone is responsible for the LLNL's collaborative research with academia and the private sector, as well as its internal investment portfolio. Prior to her position at LLNL, she served for six years as the Associate Director for National Security and International Affairs at the White House Office of Science and Technology Policy.

Returning co-chairs include Dr. J. Michael McQuade, Senior Vice President of Science and Technology, United Technologies Corporation; and the Honorable Steven Koonin, Director, Center for Urban Science and Progress and Professor of Information, Operations & Management Sciences, Leonard N. Stern School of Business, New York University.

HPCAC Co-Chair Emeritus Ms. Dona L. Crawford will continue to provide her wisdom and guidance to the Council's work. Ms. Crawford announced her retirement from Lawrence Livermore National Laboratory, and her new activities will include serving as a Senior Fellow at the Council.

### Year in Review

On April 20, 2015, the HPCAC met in Washington, D.C. Working groups on skills, software and industrial access to advanced computing systems reported their findings and potential recommendations. Participants also learned about America's plan to lead the next generation of computing (exascale) from two principal architects of that plan at the U.S. Department of Energy: Dr. J. Steve Binkley, Associate Director, Advanced Scientific Computing Research, Office of Science; and Mr. Robert Meisner, Director, Advanced Simulation and Computing, National Nuclear Security Administration.

The meeting also featured an industry perspective on the path to exascale computing. A roundtable of senior executives from HPC vendors shared their insights, including Mr. David Turek, Vice President, Technical Computing OpenPOWER, IBM; Dr. Barry Bolding, Vice President, Marketing and Business Development, Cray Inc.; Dr. Mark Seager, Chief Technology Officer for the HPC Ecosystem, Intel Corporation; and Mr. Scott Misage, Vice President and General Manager for High Performance Computing, Hewlett Packard.

During the next several months, the HPCAC working groups developed an industry survey of HPC-using companies to examine across sectors some of the most pressing priorities in skills development, software deficiencies and access barriers to collaboration with national labs and academia on some of the nation's most advanced supercomputers. The survey was put into the field, and its results will underpin a 2016 report and agenda on an emerging Exascale Economy.

On October 26, 2015, the HPCAC convened a meeting outlining and soliciting input on the Exascale Economy report and released preliminary findings of the HPC-user industry survey. HPCAC members also received expert insights on strategies used by China, Japan and Europe to seize leadership in HPC technologies and applications. Speakers included Dr. David Kahaner, Founding Director, Asian Technology Information Program, and Mr. Robert Sorensen, Jr., Research Vice President, High Performance Computing Group, IDC Corporation.

Mr. Thomas Kalil, Deputy Director for Policy, White House Office of Science and Technology Policy, and Senior Advisor for Science, Technology and Innovation, National Economic Council, gave the keynote address. He discussed the President's new National Strategic Computing Initiative and what it hopes to accomplish. The meeting continued with an overview of the "HPC for Manufacturing Initiative"—an outcome of the U.S. Council on Competitiveness' (Council) work in the American Energy and Manufacturing Competitiveness (AEMC) Partnership—and a review of the most recent Secretary of Energy's Advisory Board meeting.

On April 6, 2016, the HPCAC met to learn what industry HPC users identify as priorities to build HPC talent, address software limitations and improve access to world class HPC systems. Mr. Mike Trutt, Software IRAD Project Lead, Northrop Grumman Corporation, and Mr. Brad Spiers, Principal Solutions Architect, Micron Technology, shared how their companies leverage HPC. Members were updated on legislative developments and Co-Chair Dr. Koonin led a discussion about potential future work areas for the Committee. Ideas included regional forums to grow and strengthen the HPC user community; links between HPC and smart cities; modeling and simulation for regulatory compliance; and intersections between HPC, big data and cyber security.

The highlight of the meeting was recognizing Ms. Crawford for her service as co-chair and welcoming her to her new role as Council Senior Fellow. Ms. Crawford gave a command performance on the state of HPC and what we need to do to sustain U.S. leadership in the future. Ms. Crawford is a widely recognized as an international leader in high performance computing. Her contributions to the Council's work, to American science and security, and to U.S. competitiveness are substantial and deeply appreciated.

## Outlook

This year, the HPCAC will issue an *Exascale Economy Report* that lays a path to maintain U.S. leadership in HPC with findings from the Council HPC user survey and recommendations from the HPCAC working groups. The Council will work in Washington and in regional forums across the country to turn these recommendations into reality. The HPCAC also will discuss and decide on a new slate of priorities to pursue over the next few years. The Council will integrate the work of the HPCAC into its other initiatives, highlighting the role of HPC in U.S. technology leadership, innovation, engineering, energy and manufacturing.

***“High performance computing has the potential to transform our economy by accelerating the innovation process. To out-compute is to out-compete.”***

U.S. Council on Competitiveness



*Ms. Dona L. Crawford, Senior Fellow, U.S. Council on Competitiveness, and former Director for Computation, Lawrence Livermore National Laboratory; and the Honorable Deborah L. Wince-Smith, President & CEO, U.S. Council on Competitiveness; celebrate Ms. Crawford's contributions to the HPCAC.*

# High Performance Computing Advisory Committee

## Meeting

Washington, D.C., October 26, 2015



## Meeting

Washington, D.C., April 6, 2016



### OPPOSITE PAGE

**Top:** HPCAC members attend a meeting at the Council's offices in Washington, D.C.

**Second row, left:** Dr. Barry C. Bolding, Vice President, Marketing and Business Development, Cray Inc.; Mr. David W. Turek, Vice President, Technical Computing OpenPOWER, IBM Systems Group, IBM Corporation; Dr. Mark Seager, Intel Fellow, Chief Technology Officer for the HPC Ecosystem, Intel Corporation; and Mr. Scott Misage, Vice President and General Manager for High Performance Computing, Hewlett-Packard Company.

**Second row, right:** Mr. Barry C. Bolding, Senior Vice President and Chief Strategy Officer, Cray, Inc; and Mr. Chris Mustain, Vice President, Innovation Policy and Programs, U.S. Council on Competitiveness.

**Third row, left:** Dr. John P. Campbell, Associate Provost and Chief Information Officer, West Virginia University; Dr. Cynthia McIntyre, former Senior Vice President, U.S. Council on Competitiveness; and Mr. Richard B. Arthur, Director, Advanced Computing Computational Sciences & Architectures, GE Global Research.

**Third row, right:** Mr. Robert Meisner, Director, Advanced Simulation and Computing, National Nuclear Security Administration; Dr. J. Steve Binkley, Associate Director, Advanced Scientific Computing Research, Office of Science; and Mr. Chad Evans, Executive Vice President for Policy and Programs, U.S. Council on Competitiveness.

**Bottom:** Mr. Vijay Agarwala, Director, High Performance Computing, Advanced Research Computing, Virginia Polytechnic Institute and State University; Mr. Addison Snell, CEO, Intersect360 Research; Mr. Chris Mustain, Vice President for Innovation Policy and Program, U.S. Council on Competitiveness; and Mr. Merle Giles, Director, Private Sector Programs and Economic Impact, National Center for Supercomputing Applications, University of Illinois.

### THIS PAGE

**Top:** Mr. Chris Mustain, Vice President of Innovation Policy & Programs, U.S. Council on Competitiveness; the Honorable Deborah L. Wince-Smith, President & CEO, U.S. Council on Competitiveness; the Honorable Steven E. Koonin, Distinguished Fellow, U.S. Council on Competitiveness; Director, Center for Urban Science and Progress, and Professor, Information, Operations & Management Sciences, Leonard N. Stern School of Business, New York University, and former Second Under Secretary of Energy for Science, U.S. Department of Energy; and Ms. Dona L. Crawford, Senior Fellow, U.S. Council on Competitiveness; and former Associate Director, Computation, Lawrence Livermore National Laboratory.

**Center:** Mr. Michael Trutt, Principal Software Engineer, Northrop Grumman Mission Systems; and Dr. Gary Mastin, Senior Fellow, Corporate Engineering, Technology & Operations, Lockheed Martin.

**Bottom:** Mr. Alex R. Larzelere, Senior Fellow, U.S. Council on Competitiveness, President, Larzelere & Associates LLC, and former Director, Modeling and Simulation Energy Innovation Hub, Office of Nuclear Energy, U.S. Department of Energy; and Dr. Anne Fitzpatrick, former Associate Director of Strategic Initiatives, U.S. Department of Defense High Performance Computing Modernization Program.

## GLOBAL PARTNERSHIPS

# Why Go Global?



*Mr. Chad Evans, Executive Vice President for Policy and Programs, U.S. Council on Competitiveness; Dr. Rogerio Studart, Distinguished Fellow, Global Federation of Competitiveness Councils; Mr. Takao Nakatsuka, Chief of Office, Council on Competitiveness–Nippon, Japan; Dr. Roberto Alvarez, Executive Director, Global Federation of Competitiveness Councils; Mr. Conor Hand, Assistant Principal, Strategic Policy Division, Department of Jobs, Enterprise and Innovation (Ireland); H.R.H. Saud K. Al-Faisal, Deputy Governor, Saudi Arabian General Investment Authority; the Honorable Deborah Wince-Smith, President & CEO, U.S. Council on Competitiveness; H.E Tae-Shin Kwon, President, Korea Economic Research Institute, and former Vice Minister, Ministry of Finance and Economy and Chief of Staff, Office of the Prime Minister, Korea; Mr. John E. Larson, Chief Information Officer, King Abdullah University for Science and Technology; Ms. Shaheena Mohamed, Special Advisor, Federal Competitiveness and Statistics Authority of the United Arab Emirates; Ms. Amna Essa Al Abdulla, Associate Project Manager, Federal Competitiveness and Statistics Authority of the United Arab Emirates; Dr. Keoki Jackson, Vice President and Chief Technology Officer, Lockheed Martin; Dr. Kandeh Yumkella, Distinguished Fellow, Global Federation of Competitiveness Councils, and former Director-General, United Nations Industrial Development Organization at the 2015 Meeting of the Global Federation of Competitiveness Councils in King Abdullah Economic City, Saudi Arabia.*

The U.S. Council on Competitiveness (Council) recognizes that to compete and prosper nationally, the United States must engage globally through bilateral and multi-lateral partnerships. The Council has signed Memoranda of Understanding with organizations in many foreign countries spanning multiple continents to initiate international partnerships and catalyze innovation.

For over a decade—and building off the findings and success of its National Innovation Initiative – the Council has developed and led a global innovation and competitiveness movement: a proactive agenda with strategic partners to solve globally-scaled, grand challenges and to meet profound opportunities at the heart of future productivity and prosperity. These efforts involve our members and thousands of other leaders in deep, bilateral collaborations, as well as multilateral engagements on nearly every continent.

In the past year, the Council has signed Memoranda of Understanding (MOUs) with the Malaysian Industry-Government Group for High Technology (MIGHT); the American-Hellenic Chamber of Commerce in Greece; and Global Trade Matters in Egypt.

### **U.S.–Brazil Innovation Platform**

The Council continues to strengthen ties between the United States and Brazil. In 2015, this initiative launched a bi-national innovation platform creating a framework for promoting innovative ideas—including a series of new activities to build on more than a decade of engagements.





*Participants in the U.S.-Brazil "Immersion in Innovation Ecosystems" initiative, led by Mr. Chad Evans, Executive Vice President for Policy and Programs, U.S. Council on Competitiveness; and Ms. Gianna Sagazio, Innovation Director, Brazilian National Confederation of Industry (CNI), at the Oak Ridge National Laboratory High Performance Computing Center's Hall of Flags.*

The major development in 2015-'16 is a new strategic partnership with Brazil's National Confederation of Industry (CNI). The Council led a major delegation to CNI's biannual Innovation Forum in 2015 and will be doing so again in 2017. In addition, in partnership with CNI, the Council launched in 2016 the "Immersion in Innovation Ecosystems" initiative, an engagement platform to co-create opportunities for interaction among the organizations. This increases the opportunities to explore prospects for bi-national partnerships and leverage instruments and incentives for cooperation.

In April 2016, Brazilian leaders traveled north to the United States, where they were able to work directly with innovation and manufacturing leaders across the country.

### **Brazilian President's U.S. Visit**

The Council took part in the private-sector efforts related to the U.S. visit of former Brazilian President H.E. Dilma Rousseff. The Honorable Deborah L. Wince-Smith, President & CEO, U.S. Council on Competitiveness, moderated a panel at the 3rd U.S.-Brazil Business Summit hosted by the U.S. Chamber of Commerce and the Brazil-U.S. Business Council. The Council and the Financiadora

de Estudos e Projetos (FINEP) signed a Memorandum of Understanding to build a 10-year partnership devoted to enhancing U.S.-Brazil innovation. The MOU marks the first formal engagement between U.S. private sector leadership and Brazil's innovation agency.

### **U.S. Tech Leaders Travel to Brazil in Prep for 4th Innovation Summit**

In December 2015, Mr. Chad Evans, Executive Vice President for Policy and Programs, U.S. Council on Competitiveness, and a delegation of senior leaders from Argonne National Laboratory, Lawrence Livermore National Laboratory and Sandia National Laboratories participated in CNI's 8th Dialogue of MEI (Business Mobilization for Innovation). The U.S. delegation also participated in an International Seminar in the Brazilian Senate and House of Representatives in Brasilia.

The purpose of this trip was to kick off planning for the Council's 4th U.S.-Brazil Innovation Summit that Chancellor Pradeep Khosla will host at University of California, San Diego in September 2017.

# SAVE THE DATES

**JUNE 27-28, 2017**  
**SÃO PAULO, BRAZIL**

## 7th Brazilian Industry Innovation Summit

Hosted by CNI (The Brazilian National Industrial Confederation) and MEI (the Business Mobilization for Innovation)

**SEPTEMBER 20-22, 2017**  
**SAN DIEGO, CALIFORNIA**

## 4th U.S.-Brazil Innovation Summit

Hosted by Dr. Pradeep Khosla, Chancellor,  
 University of California, San Diego



*Mr. Luis Manuel Rebelo Fernandes, former President, Financiadora de Estudos e Projetos (FINEP); and the Honorable Deborah L. Wince-Smith, President & CEO, U.S. Council on Competitiveness, sign a Memorandum of Understanding to build a 10-year partnership.*



**Top:** The Honorable Deborah L. Wince-Smith, President & CEO, U.S. Council on Competitiveness; and Mr. Ashraf Mohamed Naguib, co-founder and CEO of Global Trade Matters, sign a bilateral Memorandum of Understanding.

**Center:** The Honorable Deborah L. Wince-Smith, President & CEO, U.S. Council on Competitiveness; H.E. Dato' Sri Mohd Najib Tun Abdul Razak, Prime Minister, Malaysia, YBhg.; Datuk Dr Mohd Yusoff Sulaiman, President and Chief Executive Officer, Malaysian Industry-Government Group for High Technology; and Dr. Tan Sri Zakri Abdul Hamid, Science Advisor to Prime Minister of Malaysia, and co-chair Malaysian Industry-Government Group for High Technology at the signing of the Memorandum of Understanding.

**Bottom:** The Honorable Deborah L. Wince-Smith, President & CEO, U.S. Council on Competitiveness; and Mr. Simos Anastasopoulos, President, American-Hellenic Chamber of Commerce, after the signing of the Memorandum of Understanding.

The U.S. Council on Competitiveness has Memoranda of Understanding with organizations representing the following countries.



Brazil



Chile



Egypt



Greece



India



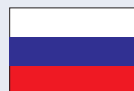
Ireland



Malaysia



Mexico



Russia



Saudi Arabia



Turkey



United Arab Emirates

# Global Partnerships



**Top:** Andrés R. Gluski, President and CEO, AES Corporation; Mr. Marco Stefanini, CEO, Stefanini Solutions; Mr. Robert Sturgell, Senior Vice President of Washington Operations, Rockwell Collins; Mr. Fernando Madeira, President and CEO, Walmart.com; Mr. Luis Manuel Rebelo Fernandes, former President, Financiadora de Estudos e Projetos (FINEP); and the Honorable Deborah L. Wince-Smith, President & CEO, U.S. Council on Competitiveness.

**Bottom:** HE Abdullah Nasser Lootah, the Director General, The Federal Competitiveness and Statistics Authority of the United Arab Emirates; Dr. Ajay Malshe, Chief Technology Officer, NanoMech, Inc.; Mr. John E. Larson, Chief Information Officer, KAUST; Mr. Suhail Masri, Vice President, Bayt.com; Mr. Ganesh Rasagam, Practice Manager for Innovation and Entrepreneurship, World Bank Group; Dr. Ahmad Al-Yamani, Chief Operating Officer, Saudi Technology Development and Investment Company (TAQNIYA); and Tarek Mansour, Senior Partner, PwC, Egypt, at the January 2016 CEO Summit on Global Competitiveness in Cairo, Egypt.

**Top:** Mr. Ganesh Rasagam, Practice Manager for Innovation and Entrepreneurship, World Bank; H.E. Tae-shin Kwon, President and CEO, Korea Economic Research Institute, and former Vice Minister, Ministry of Finance and Economy and Chief of Staff, Office of the Prime Minister, Korea; Dr. Basheer Al-Ghuraydh, Executive Director and Secretary General, U.S.-Saudi Business Council; Mr. Ashraf Naguib, Co-founder and CEO, Global Trade Matters; and Mr. Yanos Gramatidis, Honorary President, American-Hellenic Chamber of Commerce.

**Bottom:** Mr. Chad Evans, Executive Vice President for Policy and Programs, U.S. Council on Competitiveness; Mr. Christian Rwakunda, Permanent Secretary, Government of Rwanda; Mr. Fahad Al Hammadi, Chairman of the National Committee for Contractors; Dr. Rainer Speh, Chief Technology Officer, Siemens, Saudi Arabia; the Honorable Kwanza Hall, Atlanta City Council; and Ms. Ilse Gayl, Chairwoman, One Rain, and CEO, SwiftTram.



**Top:** Dr. Rogerio Studart, Distinguished Fellow, Global Federation of Competitiveness Councils; Mr. Nika Gilauri, former Prime Minister of Georgia; Mr. Stuart Anderson, Managing Director & Regional Head, Standard & Poor's Middle East; H.E. Tae-shin Kwon, President and CEO, Korea Economic Research Institute, and former Vice Minister, Ministry of Finance and Economy and Chief of Staff, Office of the Prime Minister, Korea; and Mr. William Bohnett, President, Whitecap Investments LLC.

**Top left:** Ms. Shaheena Mohamed, Special Advisor, Federal Competitiveness and Statistics Authority of the United Arab Emirates, at the Global Federation of Competitiveness Council's 2015 Global Innovation Summit in King Abdullah Economic City, Saudi Arabia.

**Top right:** Mr. Khaldon Mahasen, Investment Policy and Regulations Advisor, Saudi Arabia General Investment Authority, at the Global Federation of Competitiveness Council's 2015 Global Innovation Summit in King Abdullah Economic City, Saudi Arabia.

**Bottom:** Dr. Jean-Lou Chameau, President, King Abdullah University of Science and Technology; Dr. Turki bin Saud bin Mohammad Al Saud, President, King Abdulaziz City for Science and Technology (KACST); Dr. Michiharu Nakamura, Counselor to the President, Japan Science and Technology Agency; Dr. Kandeh Yumkella, Distinguished Fellow, Global Federation of Competitiveness Councils, and former Director-General of United Nations Industrial Development Organization; Dr. Tan Sri Zakri Abdul Hamid, Science Advisor to Prime Minister of Malaysia, and Co-Chair, Malaysian Industry-Government Group for High Technology; and Mr. Chad Evans, Executive Vice President for Policy and Programs, U.S. Council on Competitiveness.

# Global Partnerships



**Top:** Dr. Ajay Malshe, Chief Technology Officer, NanoMech, Inc., at the Global Federation of Competitiveness Council's 2015 Global Innovation Summit in King Abdullah Economic City, Saudi Arabia.

**Bottom:** H.E. Abdullatif A. Al-Othman, Governor, Saudi Arabia General Investment Authority.

**Top:** Mr. Paul Scialla, CEO, Delos Living; Mr. Fahd Al-Rasheed, Group CEO and Managing Director, King Abdullah Economic City (KAEC); the Honorable Deborah L. Wince-Smith, President & CEO, U.S. Council on Competitiveness; and Mr. Samih Barbir, Chairman, Abdali Investment & Development, PSC.

**Bottom:** Mr. Eric Ryan, President, Minno LLC, at the Global Federation of Competitiveness Council's 2015 Global Innovation Summit in King Abdullah Economic City, Saudi Arabia.



**Top:** The Honorable Deborah L. Wince-Smith, President & CEO, U.S. Council on Competitiveness, at the Global Federation of Competitiveness Council's 2015 Global Innovation Summit in King Abdullah Economic City, Saudi Arabia.

**Top:** Dr. Keoki Jackson, Vice President and Chief Technology Officer, Lockheed Martin, at the Global Federation of Competitiveness Council's 2015 Global Innovation Summit in King Abdullah Economic City, Saudi Arabia.

**Bottom:** Mr. Ashraf Mohamed Naguib, Co-founder and CEO, Global Trade Matters; Mr. Hassan Hussein, Chairman & CEO, AI Oula; the Honorable Deborah L. Wince-Smith, President & CEO, U.S. Council on Competitiveness; Ms. Amina Ghanem, Executive Director, Egyptian National Competitiveness Council; Mr. Sherif El-Diwany, Global Economist, former Director, MENA–World Economic Forum; and Mr. Tarek Mansour, Senior Partner, PwC, Egypt; at the January 2016 CEO Summit on Global Competitiveness in Cairo, Egypt.

**Bottom:** Mr. Chad Evans, Executive Vice President for Policy and Programs, U.S. Council on Competitiveness; and Mr. Ashraf Mohamed Naguib, Co-founder and CEO, Global Trade Matters, at the 12th Annual Money and Finance Summit in Cairo, Egypt.

# Global Partnerships



**Top:** Former U.S. Council on Competitiveness Executive Committee Member and former President of Lehigh University, Dr. Alice Gast, President, Imperial College, London; H.E. Dato' Sri Mohd Najib Tun Abdul Razak, Prime Minister, Malaysia; Dr. Tan Sri Zakri Abdul Hamid, Science Advisor to Prime Minister of Malaysia, and Co-Chair, Malaysian Industry-Government Group for High Technology (MIGHT); and the Honorable Deborah L. Wince-Smith, President & CEO, U.S. Council on Competitiveness, at the 6th Global Science and Innovation Advisory Council meeting in London on May 17.

**At right:** The Honorable Deborah L. Wince-Smith, President & CEO, U.S. Council on Competitiveness, with the leadership of Malaysian Industry-Government Group for High Technology in Putrajaya, Malaysia.







**Top:** Participants in the U.S.–Brazil “Immersion in Innovation Ecosystems” initiative, led by Mr. Chad Evans, Executive Vice President for Policy and Programs, U.S. Council on Competitiveness; and Ms. Gianna Sagazio, Innovation Director, Brazilian National Confederation of Industry (CNI), in front of Mira–Argonne National Laboratory’s 10 petaflop leadership class supercomputer.

**Bottom:** Dr. Fahad Mushayt, Vice President, Enterprise Business Unit, Saudi Telecom at the Global Federation of Competitiveness Council’s 2015 Global Innovation Summit in King Abdullah Economic City, Saudi Arabia.

# In the News

The Council's work over the past year has been featured in major news outlets



## Obama Returns To Booming Elkhart To Highlight Manufacturing Jobs

June 1, 2016 · 4:57 PM ET



Regardless of what caused Elkhart's rebound, U.S. manufacturing "is making a big comeback," according to Deborah Wince-Smith, CEO of the Council on Competitiveness, a nonpartisan organization of corporate CEOs, university presidents and labor leaders.

Earlier this spring, the council, working with the consulting firm of Deloitte, issued a report saying the United States is "leapfrogging China" in terms of manufacturing competitiveness because of investments in new technologies. It predicts that by 2020, the U.S. will move up from No. 2, behind China, to No. 1 as the most competitive manufacturing center in the world.



President Obama speaks in Elkhart, Ind., about the improvement in the area's economy and the role of his policies in the rebound.  
Pablo Martinez Monrival/AP

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Joel Kotkin Contributor

I cover demographic, social and economic trends around the world.

Opinions expressed by Forbes Contributors are their own.

REINVENTING AMERICA 7/23/2015 @ 2:15PM | 128,564 views

## The Cities Leading A U.S. Manufacturing Revival

By Joel Kotkin and Michael Shires

Manufacturing may no longer drive the U.S. economy, but industrial growth remains a powerful force in many regions of the country. Industrial employment has surged over the past five years, with the sector adding some 855,000 new jobs, a 7.5% expansion.



## Roll Call HEARD ON THE HILL

### Senate Competitiveness Caucus Looks at Changing Labor Market

By Alex Gangitano

Posted at 6:09 p.m. on Jan. 28

Co-chairman of the Senate Competitiveness Caucus, Sens. Chris Coons, D-Del., teamed up with the Council on Competitiveness for a briefing on how the changing labor market presents both challenges and opportunities for America's workers.



# FORTUNE

## The U.S. Will Surpass China As the No. 1 Country for Manufacturing by 2020



CSCMP  
Supply Chain  
[QUARTERLY]

FORWARD THINKING

### Will U.S. manufacturing be back on top?

By Staff | May 12, 2016

A new report predicts that by 2020 the United States will replace China as the most competitive manufacturing nation.

China's position as the top country for manufacturing may be in jeopardy if a recent report by the global consulting group Deloitte and the Council on Competitiveness is to be believed. While China currently ranks as number one in the "[2016 Global Manufacturing Competitiveness Index](#)" (GMCI), the index, which is based on survey results from more than 500 manufacturing executives, predicts that the United States will seize the top spot in 2020.

IndustryWeek  
Advancing the Business of Manufacturing

### Look Out China, US Manufacturing is Headed for No. 1

Steve Minter | IndustryWeek

Mar 31, 2016

US expected to take crown as most competitive manufacturing nation by 2020, says new survey of executives.



Advanced manufacturing technologies are helping to push the United States back toward being the most competitive manufacturing nation in the world, according to a new survey of global CEOs and other senior executives.

While China is the world's most competitive manufacturing nation, according to the 2016 Global Manufacturing Competitiveness Index developed by Deloitte and the Council on Competitiveness, the U.S., now ranked second, is expected to take the top spot by 2020.

# New Fellows

## Mr. Bray Barnes

Senior Fellow



Mr. Barnes is the Founder and Principal of Security Evaluation and Solutions Group, LLC, which provides unique homeland security solutions and employs industry-wide best management practices.

## Mr. Alex R. Larzelere

Senior Fellow



Using our national laboratory supercomputers, Mr. Larzelere developed advanced modeling and simulation capabilities for nuclear energy at the U.S. Department of Energy. He is also a member of the Council's High Performing Computing Advisory Committee.

## Ms. Dona L. Crawford

Senior Fellow



Ms. Crawford recently retired from running a 900-person department at Lawrence Livermore National Laboratory that worked with some of the biggest supercomputers in the world. She is former co-chair of the Council's High Performance Computing

Advisory Committee.

## Mr. Mark Minevich

Senior Fellow



Mr. Minevich is the principal founder of Going Global Ventures, a New York-based global investment and strategic advisory firm.

## Dr. Ray O. Johnson

Distinguished Fellow



Current Executive-in-Residence at Bessemer Venture Partners, Dr. Johnson was the founding co-chair of the Council's Technology Leadership Strategy Initiative.

## Mr. Richard Sergay

Senior Fellow



Mr. Sergay, founder of Rebel Media Productions, is an award-winning, veteran network television journalist and senior media executive who spent much of his career at ABC News.

## The Honorable Steven E. Koonin

Distinguished Fellow



Mr. Koonin, Director, Center for Urban Science and Progress, and Professor, Information, Operations & Management Sciences, Leonard N. Stern School of Business, New York University, is co-chair of the Council's High Performance Computing Advisory

Committee, Dr. Koonin served as the second Under Secretary for Science at the U.S. Department of Energy.

## Dr. William Wescott

Senior Fellow



Dr. Wescott is the founder and CEO of BrainOxygen LLC, a leading business development firm in clean technologies, information technology and professional services.

# Value of Membership

Membership is by invitation only, extended to those who have distinguished themselves as leaders for U.S. competitiveness. Members receive a wide array of benefits:

## Platform for Competitiveness Leadership

Along with peer CEOs, labor leaders, university presidents and national lab directors, members have the opportunity to propose, shape and implement policies to improve the nation's competitiveness.

## Nonpartisan Solutions

The Council's nonpartisan membership helps break through the political gridlock to produce strong policy positions.

## From Policy to Impact

The Council helps set the agenda for federal policymakers. Members engage with top administration officials, testify at congressional hearings and lead Capitol Hill briefings.

## National and International Conferences

Finding solutions to complex problems begins with an open exchange of ideas. Council events are structured with this in mind. Hundreds of leaders from around the world attend global summits and the annual National Competitiveness Forum.

## Regional Dialogues

To better inform the Council's work, members host dialogues and meetings across the country to highlight local and regional best practices, as well as to assess the real-world impact of national competitiveness policy.

## Expanded Brain Trust

Council staff experts and distinguished fellows are a valuable resource for members. These thought leaders include former CEOs, CTOs, members of Congress, and cabinet and agency leaders.

## About the U.S. Council on Competitiveness

The U.S. Council on Competitiveness' mission is to set an action agenda to drive U.S. competitiveness, productivity and leadership in world markets to raise the standard of living for all Americans.

The U.S. Council on Competitiveness is the only group of CEOs, university presidents, labor leaders and national laboratory directors committed to ensuring the future prosperity of all Americans and enhanced U.S. competitiveness in the global economy through creation of high-value economic activity in the United States.

## How We Operate

The key to U.S. prosperity in a global economy is to develop the most innovative workforce, educational system and businesses that will maintain the United States' position as the global economic leader.

The Council achieves its mission by:

- Identifying and understanding emerging challenges to competitiveness.
- Generating new policy ideas and concepts to shape the competitiveness debate.
- Forging public-private partnerships to drive consensus.
- Galvanizing stakeholders to translate policy into action and change.

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