



Engineering our Nation's Future



NATIONAL
ENGINEERING
FORUM



NATIONAL ENGINEERING FORUM

After our first full year of National Engineering Forum regional dialogues, we are encouraged by your support, energized by your ideas, and eager to learn more in our quest for solutions to the engineering enterprise's greatest challenges: capacity, capability, and competitiveness – the 3C's.

It is clear as we talk to engineering leaders across the United States that the time has come to elevate to national consciousness the power of engineering to solve the greatest issues facing our country: from mitigating climate change, to enhancing cyber security, to balancing and optimizing resources for energy, food, and water. The National Engineering Forum (NEF) is the platform for engaging in those conversations.

We've enlisted hundreds of leaders from government, academia, industry, labor, national laboratories, the arts, finance, and media in the NEF movement to develop actionable solutions to the 3C's. Each dialogue's conversations build on what we've learned so far, and we are encouraged by your enthusiastic, passionate participation.

We've also launched our NEF Generation (NEF Gen) initiative to involve engineering students and engineers who are in the first few years of their careers in our mission to find solutions to the 3C's. Capturing the energy and enthusiasm of the next generation of engineers and incorporating their ideas into what we learn at each dialogue is further informing the NEF agenda.

The regional dialogues and NEF Gen conversations have been robust, thoughtful, and focused on solutions. But the dialogues and conversations are just the beginning. We must keep the momentum from each regional event going strong, and we are grateful for your involvement which has been, and is still, critical as we move forward.

Sincerely,

Jeff Wilcox
Vice President of Engineering
Lockheed Martin
NEF Co-founder

Deborah L. Wince-Smith
President & CEO
Council on Competitiveness
NEF Co-founder



WHAT IS NEF?

The National Engineering Forum (NEF) is a movement focused on creating solutions for three challenges facing the U.S. engineering enterprise: capacity, capability, and competitiveness. Momentum-building regional dialogues involve leaders from industry, academia, media, and government in shaping the agenda and building a community of action.

ACCOMPLISHMENTS

Regional Dialogues

The National Engineering Forum's regional dialogues bring together thought leaders to focus on three engineering challenges: capacity, capability, and competitiveness - the 3C's. Participants represent stakeholder groups that are well positioned to address the 3C's and enable a dynamic view of the past, present, and future of American engineering. As the NEF community of action builds, it generates the ideas and solutions that fuel the movement.

The format of a NEF regional dialogue is structured to cultivate rich conversation around the 3C's. Attendees hear from NEF leadership, our regional hosts, and inspiring local engineering leaders. Then, during a working dinner, participants engage in a guided, but lively, dialogue centered on their own experiences.

With the goal of facilitating insightful conversation, NEF asked hundreds of regional dialogue participants across the nation two questions:

- **Which factors helped this region become important to engineering, and does the region still have what it takes?**
- **How can we better communicate the importance of engineering to ensure our technical workforce has the *capacity* and *capability* to ensure our nation's continued *competitiveness* within the global environment?**

FINDINGS TO DATE

Building on the success of regional dialogues to date, the National Engineering Forum is cultivating and curating solutions, while expanding the network of support through regional leaders invested in advancing American engineering. Each dialogue's conversations build on those that preceded it. At this juncture, we have the advantage of seeing themes emerge, while still having numerous dialogues ahead which will add to our findings, illuminate the areas with the most critical need, and create action plans that truly address the challenges facing our nation's engineering enterprise. We have confidence in these findings because they are distilled from informative,

thoughtful conversations held with influencers who live and work in America's engineering hubs.

A content analysis of the dialogue transcripts to-date reveals five **distinctive themes**:

- **Understanding the Nature of the 3C's**
- **Education Advocacy**
- **Public Perception of Engineers and Engineering**
- **Public and Private Investment**
- **Immigration Reform**

Within each theme, participants provided actionable recommendations to address the 3C's.

DEFINING THE PROBLEM

Participants explored the challenges facing the engineering community in the context of the 3C's. Questions were raised about the underlying causes of the capacity, capability, and competitiveness challenges and whether they vary by region and industry.

Their questions represent the gap in the public and professional understanding:

- Is America really facing a shortage of talent?
- What is causing the shortage of qualified engineers? Is it retiring baby boomers, growing demand for STEM talent, claims of the low wages relative to other sectors, or some combination of these factors?
- Are there shortages in all sectors and regions or just a subset?
- How do American engineers rank internationally?



Detroit, MI

EDUCATION ADVOCACY

The demands of 21st century innovation require an evolution in engineering education, and possibly a national vision to guide changes throughout the education pipeline from primary and secondary schools (K-12), universities, community colleges and technical schools, and continuing education.

Increasing engineering capacity is dependent on an educational system that is steeped in Science, Technology, Engineering, and Math (STEM). Engineering is the “verb” that brings the other three subject areas to fruition. Science is evident and we know what it does through its prominence in the media and other avenues. Technology is in our pockets and in our hands – it’s a noun, a thing. Math is the language of the universe. Value is created through the engineering process where you apply the science, technology, and math fundamentals and manifest an idea.

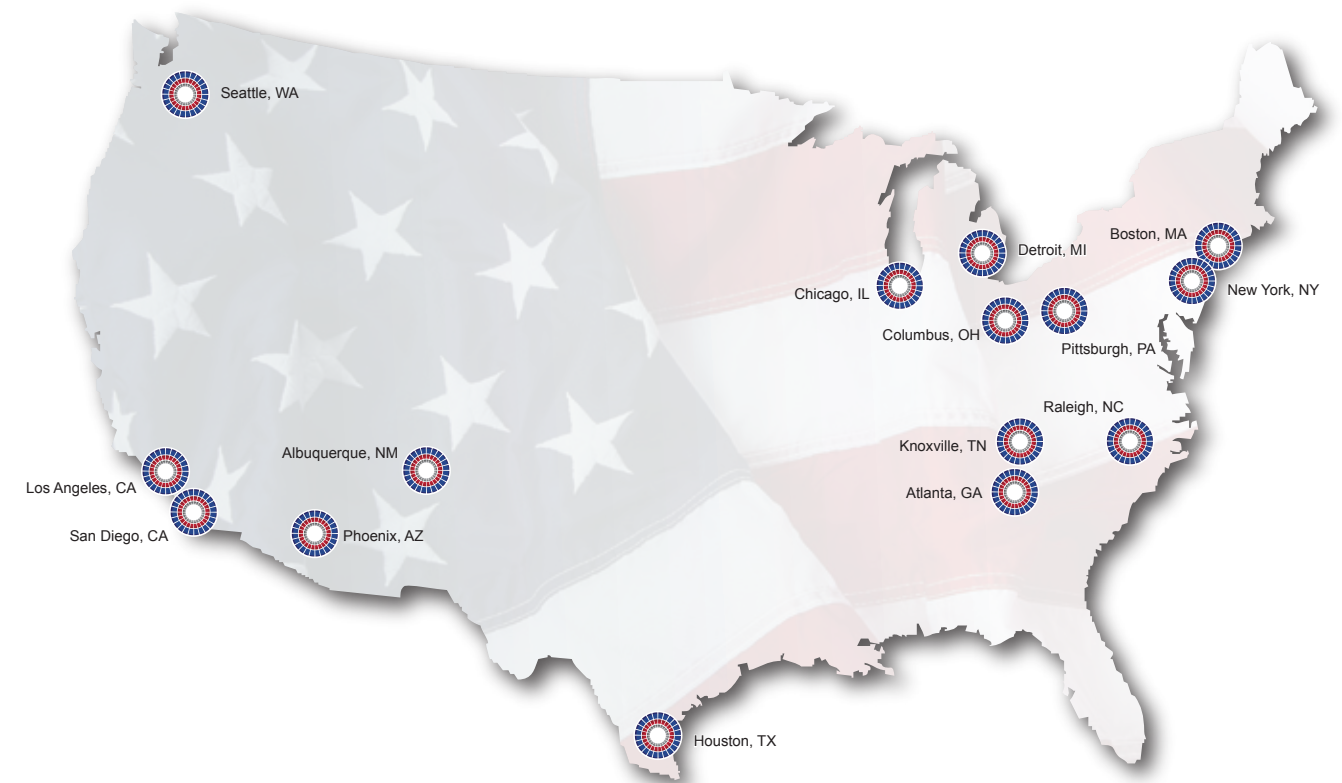
Educators should be given resources and tools to creatively rethink pathways through the American educational system. We have heard a call for a new way of thinking that expands the scope of a traditional education. For example, offering dual-degree programs at liberal arts schools, urging students at engineering schools to pursue an education that includes arts and humanities, and attracting students by integrating the arts with STEM - creating STEAM. Furthermore, participants noted the importance of strengthening efforts to inspire engineering in minority groups, not only to address the capacity challenge, but also to encourage diversity of thought and experiences as we seek collaborative, creative solutions to 21st century challenges.

PUBLIC PERCEPTION OF ENGINEERS AND ENGINEERING

A key area that must be addressed is the need to communicate the essential nature of engineering to the nation – the general public and specific constituencies such as elected officials at every level of government, educators from kindergarten to post-graduate, and corporate leaders. It is of the utmost importance that we define engineering in a way that prioritizes and underscores its crucial role in national security, prosperity, and our competitiveness in a global economy.

For the NEF movement to be effective, all citizens must be energized and that should drive a multimedia

NEF REGIONAL DIALOGUES



NEF messaging campaign, heavily leveraging social media, industry partnerships with educational institutions and nonprofit organizations, and informing students, parents, and educators about engineering. Outreach should include diverse engineering role models and diligent efforts to reach all communities.

PUBLIC AND PRIVATE INVESTMENT

Each region must clearly identify the assets that make it unique and build awareness of those assets’ value in order to attract investment to grow the region’s – and the nation’s – competitiveness. In doing so, capacity and capability will also be enhanced as engineering careers become more prestigious, attracting even higher levels of talent for entrepreneurial ventures, and building prosperity. Dialogue participants tell us leveraging regional resources, including national laboratories, manufacturing training facilities, shared research platforms, and a commitment to investing in 21st century infrastructure, will cultivate a robust engineering talent pool to facilitate the growth

and competitiveness of small and medium-sized companies.

IMMIGRATION REFORM

Differing ideological and political perspectives on immigration reform have surfaced in the dialogues. One point of agreement has been the need for gathering input from other national engineering hubs and giving thoughtful consideration before suggesting an actionable solution. So far, the majority of opinions fall into two main camps. Some stakeholders say efforts such as the National Engineering Forum’s focus on the capacity challenge will not directly impact the U.S. engineering labor force for decades and, therefore, immigration reform can provide an immediate solution to the current demand for engineers. Opponents of immigration reform efforts maintain that granting more H-1B visas and increasing the number of foreign-born engineers with permanent resident status drives down labor costs in the private sector, acting as a disincentive for American students considering engineering degrees.

“Michigan has more engineers per capita than any other state. Because of that, we are proud to partner with NEF as co-host of the Detroit regional dialogue. Our capability and capacity to innovate and translate ideas into solutions is a competitive advantage that will have a great impact on our state’s, and our nation’s, economic future.”

DOUG ROTHWELL, PRESIDENT & CEO, BUSINESS LEADERS FOR MICHIGAN



ACCOMPLISHMENTS

Regional Perspectives

Each region brings a unique view of the 3C's. Below is a brief sketch of each dialogue to date. For more details, the full synopses are available on the NEF website at www.nationalengineeringforum.com.

NEW YORK CITY
Hosted by Stevens Institute of Technology
September 18, 2012
 The inaugural NEF regional dialogue focused on engineering's role in propelling the human imagination and underpinning human evolution. Participants noted that engineering is the culmination of creative synthesis, innovation, problem-solving, building, creating, designing, and developing. They noted that telling the compelling engineering story must become a priority.

KNOXVILLE, TENNESSEE
Hosted by Oak Ridge National Laboratory
April 18, 2013
 Knoxville's regional dialogue focused on better communicating the power and potential of engineering, re-thinking industry-university-labor-national laboratory collaborations to create a more capable and competitive cadre of engineers and engineering-aware Americans, and linking engineering to solving global grand challenges as a way to encourage greater engagement from students and incumbent workers of all ages.

“We need to tap [students'] idealistic streak and their desire for problem-solving. We need to look at engineering as a verb, not a noun. Society needs to give meaning to engineering, and engineering can give context to math and science.”

DR. DINESH VERMA, DEAN OF THE STEVENS SCHOOL OF SYSTEMS AND ENTERPRISES, AND EXECUTIVE DIRECTOR OF THE SYSTEMS ENGINEERING RESEARCH CENTER, STEVENS INSTITUTE OF TECHNOLOGY

ALBUQUERQUE, NEW MEXICO
Hosted by Sandia National Laboratories
May 29, 2013
 The Albuquerque dialogue reinforced the need for greater diversity in engineering, a deeper understanding and appreciation of engineering's role in U.S. growth and living standards, visibility and communication of engineers' roles in communities, and building the capacity of engineers to be well-rounded, teamwork-focused, and leaders in solving grand challenges and meeting opportunities for competitive advantage.

LOS ANGELES, CALIFORNIA
Hosted by the University of Southern California
June 11, 2013
 In Los Angeles, the focus was on a robust enterprise of innovative, creative engineers driving economic inclusion and growth. Discussion centered on LA's history in the nation's 20th century global engineering dominance, and its future, particularly industrial evolution – a changing manufacturing profile with an engineering-heavy services and entertainment ecosystem – and implications for long-term competitiveness and prosperity.

Facing Page (clockwise): Los Angeles, CA, Columbus, OH, Houston, TX, Knoxville, TN, Albuquerque, NM.



SAN DIEGO, CALIFORNIA

**Hosted by the University of California, San Diego
October 10, 2013**

San Diego participants pointed to skills and how future demands relate to the current education system. For K-12, that means exploring STEM engagement levels and focusing on engineers' positive impact. For higher education, it means project-based learning and continuing education for early-career professionals. To reinvigorate U.S. competitiveness, participants pointed to the potential of advanced manufacturing to reduce costs.

SEATTLE, WASHINGTON

**Hosted by the University of Washington and the Pacific Northwest National Laboratory
October 14, 2013**

Seattle's discussions explored better communication about the importance of engineering in the nation's global competitiveness. Participants discussed the need to consider engineering's role in managing the balance of natural resource preservation and pursuing new and existing energy resources. They also explored how to increase engineering class sizes to avoid discouraging or turning away prospective students.

COLUMBUS, OHIO

**Hosted by The Ohio State University
October 31, 2013**

Discussion in Columbus explored issues of diversity, collaboration, and communication. In particular, the dialogue addressed how better to communicate the importance of engineering to attract students to the field and working with educators and industry to ensure that the technical workforce has the required skills for the U.S. to remain competitive within the global environment.

HOUSTON, TEXAS

**Hosted by Texas A&M University
November 12, 2013**

Houston's dialogue focused on addressing the lack of engineering learning in early education and the need to celebrate engineers. While improving education is important, dialogue participants stressed the need for engineers to reach out, recruit, and inspire potential young engineers of the future.



San Diego, CA

DETROIT, MICHIGAN

**Hosted by the University of Michigan, Michigan State University, and Business Leaders for Michigan
December 2, 2013**

Detroit conversations centered on attracting and retaining talent in Michigan, where there is only one qualified engineer for every five open jobs. Education was a theme, specifically, the gap between K-12 and college preparedness, funding expanded engineering departments, and businesses partnerships. Participants also want to change the perception of engineering and increase understanding of the skills needed for viable engineering talent.

RALEIGH, NORTH CAROLINA

**Hosted by NC State University and Duke University
March 26, 2014**

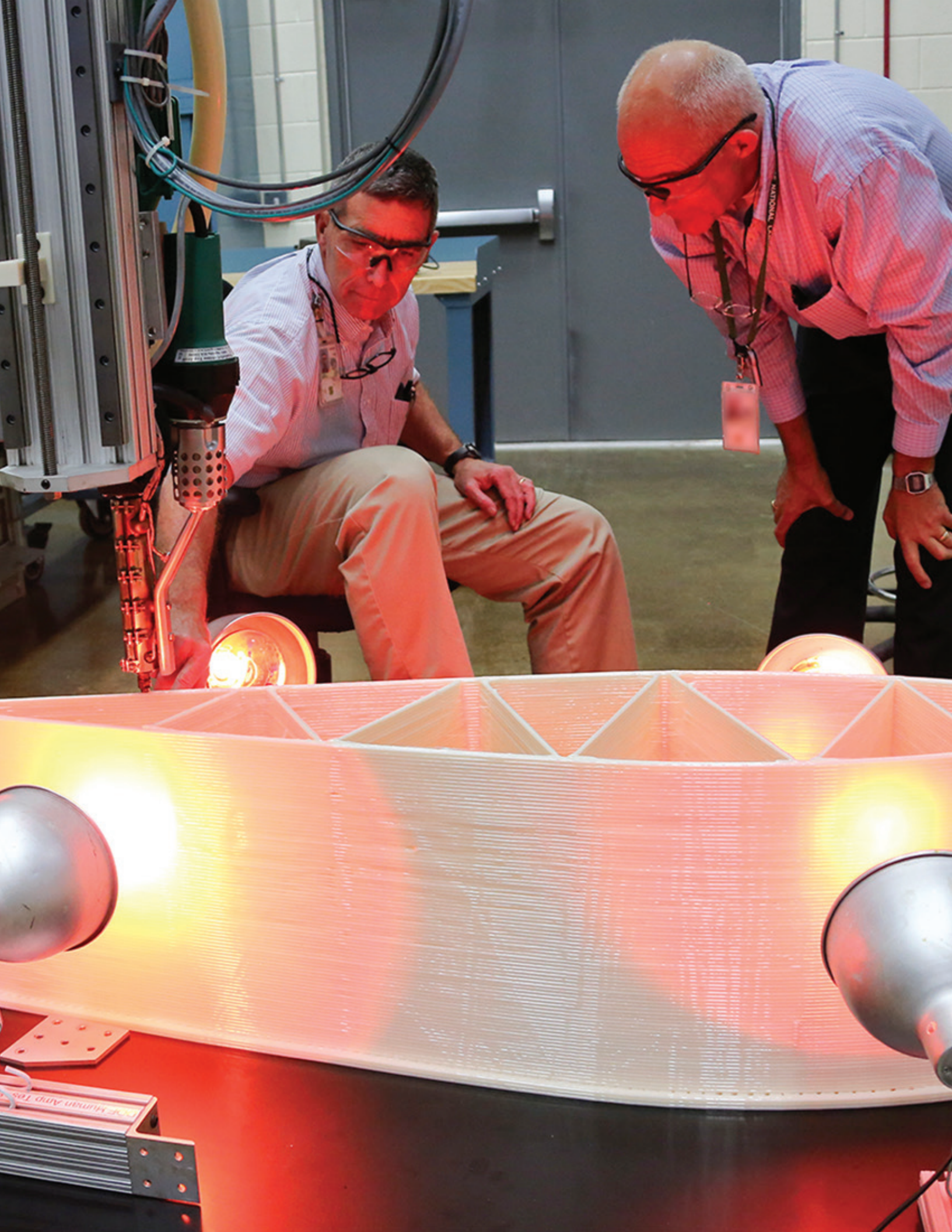
Discussions in Raleigh focused on the need to expose K-12 students to engineering and increase industry and university collaboration. Also of note, capitalizing on the cultural, educational, engineering, medical, and agricultural resources in the Raleigh-Durham region and the need to retain talent locally. Participants also noted the need to revitalize national interest in and respect for engineering, particularly in the ways it benefits society.

“As a nation we struggle to find talented individuals, and it is difficult to keep pace with the mission needs. We are fortunate to be able to attract staff from around the world, but that is in part necessitated by the fact we don't cultivate enough homegrown talent within the U.S. In many cases the draw ‘back home’ for scientists and engineers from abroad is getting stronger as economies grow globally and look to the American model of innovation to develop further.”

DR. THOM MASON, DIRECTOR, OAK RIDGE NATIONAL LABORATORY

“If we believe that engineering is empowering society, which I strongly do, the natural corollary is that society needs to empower engineering. In today's hyper-connected and hyper-competitive world, U.S. engineering must utilize all assets for advancement.”

DR. YANNIS C. YORTSOS, DEAN OF THE VITERBI SCHOOL OF ENGINEERING AT THE UNIVERSITY OF SOUTHERN CALIFORNIA



Engineering Perspectives

CAPACITY



Dr. Kathy Banks is Vice Chancellor of Engineering, The Texas A&M University System, and Dean of the Dwight Look College of Engineering, Texas A&M University. Texas A&M was host of the Houston NEF regional dialogue.

At Texas A&M, we're addressing the 3C's holistically by changing the way we educate engineers. Motivated by the statistic that Texas A&M University turns away 85 percent of engineering applicants – many of whom are qualified to succeed – I recently embarked upon “25 by 25,” an enrollment growth plan to increase

access to 25,000 engineering students by 2025. “25 by 25” is not just about increasing enrollment, but providing better instruction and learning opportunities; leveraging technology and innovative methods to transform the educational experience while maintaining our status as a top-ranked research program and doing so in a cost-effective manner.

The idea of doubling engineering enrollment over a 12-year period is considered radical when most universities are limiting or resisting growth.

We are rethinking every aspect of our educational delivery. Our economic prosperity depends upon the production of highly qualified engineering graduates.

“We are a global society, and in the future, engineers must be prepared to act as ethical, socially responsible, global citizens. Beyond fundamental engineering training, it will be essential for students to work effectively in interdisciplinary teams, embrace diversity and communicate well. An understanding of entrepreneurship and the translation of ideas will also be increasingly important.”

DR. MICHAEL B. BRAGG, DEAN OF THE UNIVERSITY OF WASHINGTON COLLEGE OF ENGINEERING



Dr. Pradeep K. Khosla is Chancellor of the University of California, San Diego, which hosted the San Diego NEF regional dialogue.

Universities educate next-generation leaders, and produce translational research that advances knowledge and enriches lives. They also boost the economy through the creation of new jobs and industries. That is why universities play an important role in addressing the National Engineering Forum's 3C's – the capacity, capability, and competitiveness of our engineering workforce. Higher education must ensure that our 21st century engineering workforce has the knowledge, skills, and visionary leadership to tackle complex global challenges and increase our competitiveness on the world stage.

Three decades ago, UC San Diego injected new life into the San Diego economy as defense industry funding was drying up. Engineers from our faculty, staff, and alumni helped to expand and strengthen the high-tech, bio-tech, and clean-tech industries by spawning new research and courses, spinning off companies, creating new jobs and training a



highly skilled workforce. We believe this model can be replicated on a national level, if you join with us to support engineers' abilities to address our 21st century challenges.

CAPABILITY



Dr. James H. Garrett is Dean of Carnegie Mellon University's (CMU) College of Engineering. CMU and the University of Pittsburgh cohosted the Pittsburgh regional dialogue.

Carnegie Mellon is one of the universities committed to challenging students and faculty to broaden their experiences into different disciplines. Breaking down boundaries is a disruptive force that often leads to better, more creative, and more effective solutions. That's an important factor in both engaging students and equipping them with the tools to solve our future's most complex problems.

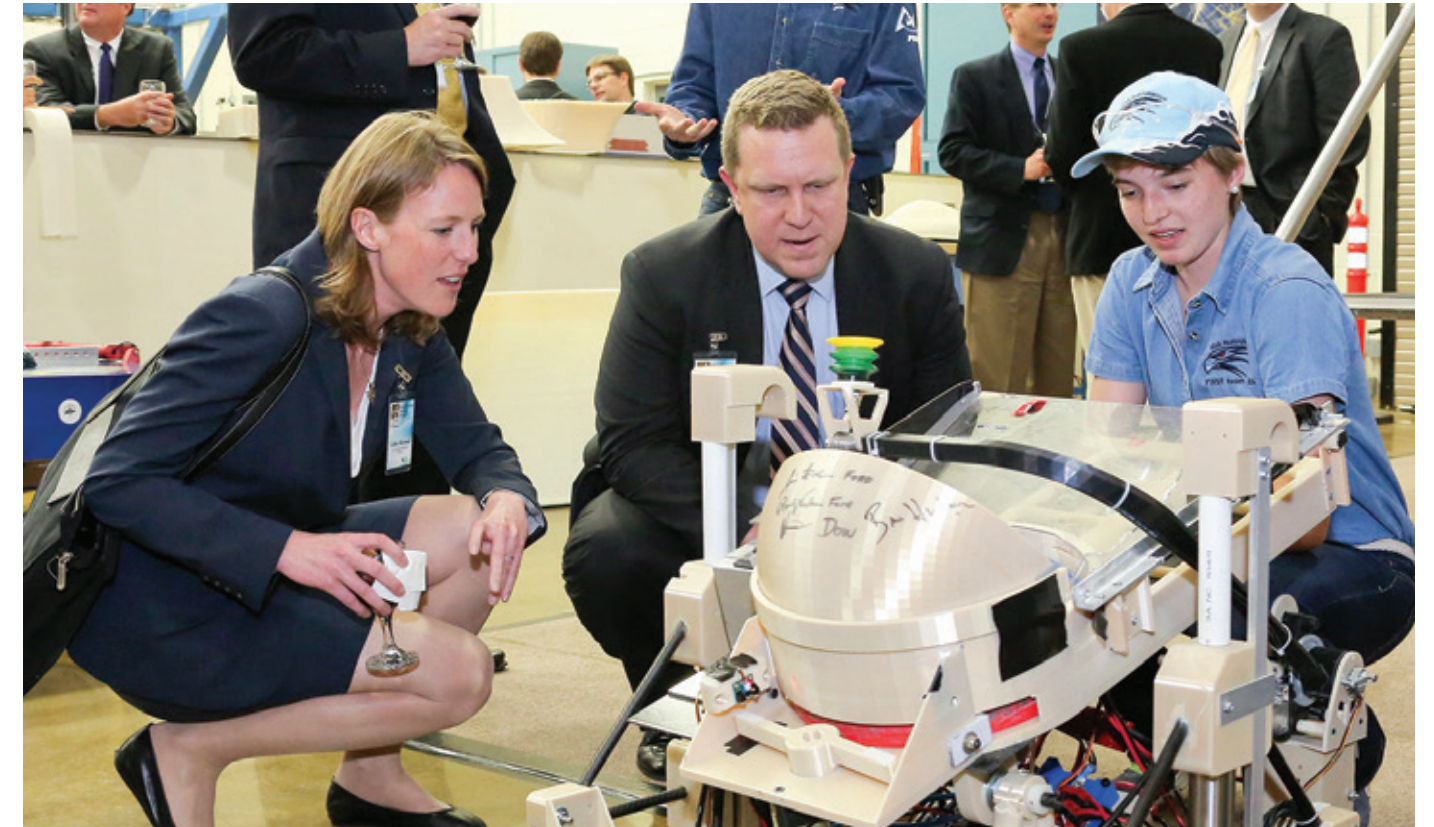
Three examples:

- CMU is co-leading a multidisciplinary research team charged with supporting bridge inspectors through the use of small autonomous aerial robots.
- CMU engineers are exploring the overlap between biological systems and design to confront disease and address hunger.
- And our researchers are forging the future of electric vehicles through synthesis of energy and environmental policy, green design, and systems optimization.

Those are just a few of many, many examples that show the creativity of engineers and the impact of their work on society.

“Our future competitiveness depends on a skilled workforce of engineers and innovators.”

DR. RAY O. JOHNSON, SENIOR VICE PRESIDENT & CHIEF TECHNOLOGY OFFICER, LOCKHEED MARTIN



Elizabeth Wayman (left), Director of the Clean Energy Manufacturing Initiative at the U.S. Department of Energy, and Dr. David Danielson (center), Assistant Secretary for Energy Efficiency and Renewable Energy at the U.S. Department of Energy, talk to a student at the Knoxville regional dialogue.



Dr. Paul Hommert is the Director of Sandia National Laboratories, which hosted the Albuquerque NEF regional dialogue.

At Sandia, our multidisciplinary scientists and engineers solve complex problems, address issues of national and even global importance, and translate basic science and engineering into technological discovery and innovation. The three challenges identified by the National Engineering Forum – capacity, capability, and competitiveness – are vitally important to the work we do here.

Engineering success at Sandia increasingly is built on effective interdisciplinary teams. While there will continue to be a strong need for fundamental

disciplines, success will depend on people who also are adept at applying concepts from computer science, biology, cognitive science, game and chaos theory, and similar fields.

We talk about excelling at the practice of engineering. It's a simple objective that includes engineers bringing scientific developments to application. If U.S. engineering remains effective at translating science to application, we will retain technological superiority in missile defense, cyber, antiterrorism, and space. Similarly, it's important to the nation's prosperity to use engineering to turn scientific innovations into products that come rapidly to market and increasingly are made in the United States.

All of this makes Sandia vitally interested in future engineers and scientists.



Michigan State University President Lou Anna K. Simon (left) and President of the University of Michigan Mary Sue Coleman (right), along with Doug Rothwell, President and CEO of Business Leaders for Michigan (not pictured) hosted the Detroit regional dialogue.

“All of us — faculty, government officials, industry, and media representatives — have a role to play in shaping the future. None of us can do it alone. We need academic institutions to devise successful educational approaches. We need government to support research. We need industry to support development and commercialization. And we need the media to help us inform the public.”

DR. DAVID MUNSON, THE ROBERT J. VLASIC DEAN OF ENGINEERING, UNIVERSITY OF MICHIGAN

COMPETITIVENESS



Dr. Tom Katsouleas is Dean of the Pratt School of Engineering at Duke University, who along with NC State University Dean of Engineering Louis Martin-Vega, cohosted the Raleigh-Durham NEF regional dialogue.

A couple of years ago, I co-organized with the ASEE an international workshop on “The Role of Engineering Education in the Global Economy.” The meeting happened to be in Shanghai and provided a rare opportunity to see the growing gap between Chinese and U.S. engineering education over the past decade. As their former Minister of Science and Technology told us, China was turning out 750,000 engineers a year, but they could not find jobs – yet at the same time, China’s industry couldn’t find adequately prepared engineers to meet their workforce needs.

To me, this underscores the importance of all three C’s that we discuss in the National Engineering Forum—it is not just capacity, but capability and competitiveness that are crucial to creating an engineering workforce that ensures American competitiveness in the global marketplace.

We have to continue to support educational programs that prepare students with engineering fundamentals as well as a broad liberal arts context for understanding how engineering addresses society’s grand challenges and helps people lead better lives. Fortunately, these last two messages are also quite appealing to young people, and help draw the diverse population we need into engineering to build the capacity and capabilities we need for the U.S. economy.



Mark W. Albers is Senior Vice President of ExxonMobil.

The key is education. Our nation’s competitive abilities rest on our math and science education. And yet, American students are not ranking as highly as we need them to. Our concern over these shortcomings is what led ExxonMobil to become a founding sponsor of National Math and Science Initiative (NMSI).



It is essential that students develop critical reasoning skills – what they should know and be able to do for later success in college and the workforce.

Beyond education, there needs to be an increased understanding by policymakers of the role of certainty and sound policy as an essential part of the business climate. Energy projects in particular take years of planning, investment, and risk management from their conception to reality. When policymakers and industry understand their respective roles and responsibilities, industry is free to generate new technologies and opportunities – as we see in the ongoing creation of millions of new jobs associated with the rise of unconventional oil and natural gas development in the United States. That’s just one example of what American engineering and entrepreneurship can do.

“Engineers have the opportunity to create great change in the world – inventing a crazy problem, solving it, and suddenly changing our lives for the better.”

RICO MALVAR, RETIRED DISTINGUISHED ENGINEER AND CHIEF SCIENTIST, MICROSOFT RESEARCH



NEF Generation

NEF Generation (NEF Gen) launched in 2014 as a way for engineering students and early-career engineers to be involved in the National Engineering Forum movement. This community is the future of the engineering enterprise. Students and young professionals are energized and eager to be this country’s next great engineers. To capitalize on that energy and enthusiasm, NEF Generation Meet-Ups are happening in various regional dialogue locations. In addition, we are leveraging the power of social media through Instagram, Twitter, and other outlets to involve the NEF Generation in taking action toward finding solutions to the 3C’s.

CASE STUDY



Beth Papanek is pursuing a Ph.D. in Energy Science at the University of Tennessee, Knoxville and was one of the student scribes taking notes on the discussions at the Knoxville regional dialogue.

As a student who eventually wants to move out of the laboratory setting, the interaction with industry leaders at the NEF regional dialogue was valuable as I was able to hear their concerns about education and the abilities that employers desire, but often find lacking, in job candidates.

The regional dialogue made clear that science, technology, engineering, and math (STEM) education alone is not where the problems lie. Giving students skills in areas other than formal coursework and focused research is an excellent way to train them for the overarching concerns in industry.

I learned that there need to be widespread changes in the way the workplace recruits and retains engineers to improve the nation’s competitiveness in engineering. My hope is that interdisciplinary programs proliferate to produce a better-rounded workforce that can meet the challenges.

“Tomorrow’s engineers need entrepreneurial and experiential opportunities that emphasize cross-disciplinary education and team solutions. We also must provide international experiences and meaningful interactions with industry.”

DR. DAVID B. WILLIAMS, DEAN OF THE COLLEGE OF ENGINEERING AT THE OHIO STATE UNIVERSITY

Social Media

An interest in engineering is often piqued in childhood. Toys that enable kids to design, build, and explore have inspired future engineers and innovators for generations. With that in mind, we asked some of our NEF regional dialogue partners, “What toy inspired you?” Here are a few responses. Find more in our newsletter story on www.nationalengineeringforum.com.

TELESCOPE

“The thing most responsible for pursuing a career in science and engineering was the dark sky of a small town in Illinois. By the time I was 10, I had decided that I wanted to be an astronomer. My parents gave me reclining outdoor chairs for my birthday one year so we could all look at the heavens in comfort, followed in fairly short order by a 6-inch reflecting telescope. Over time, my interests evolved, but it all started with staring at the stars.”

JULIA PHILLIPS, DEPUTY CHIEF TECHNOLOGY OFFICER, SANDIA NATIONAL LABORATORIES

ERECTOR SETS AND ELECTRONICS

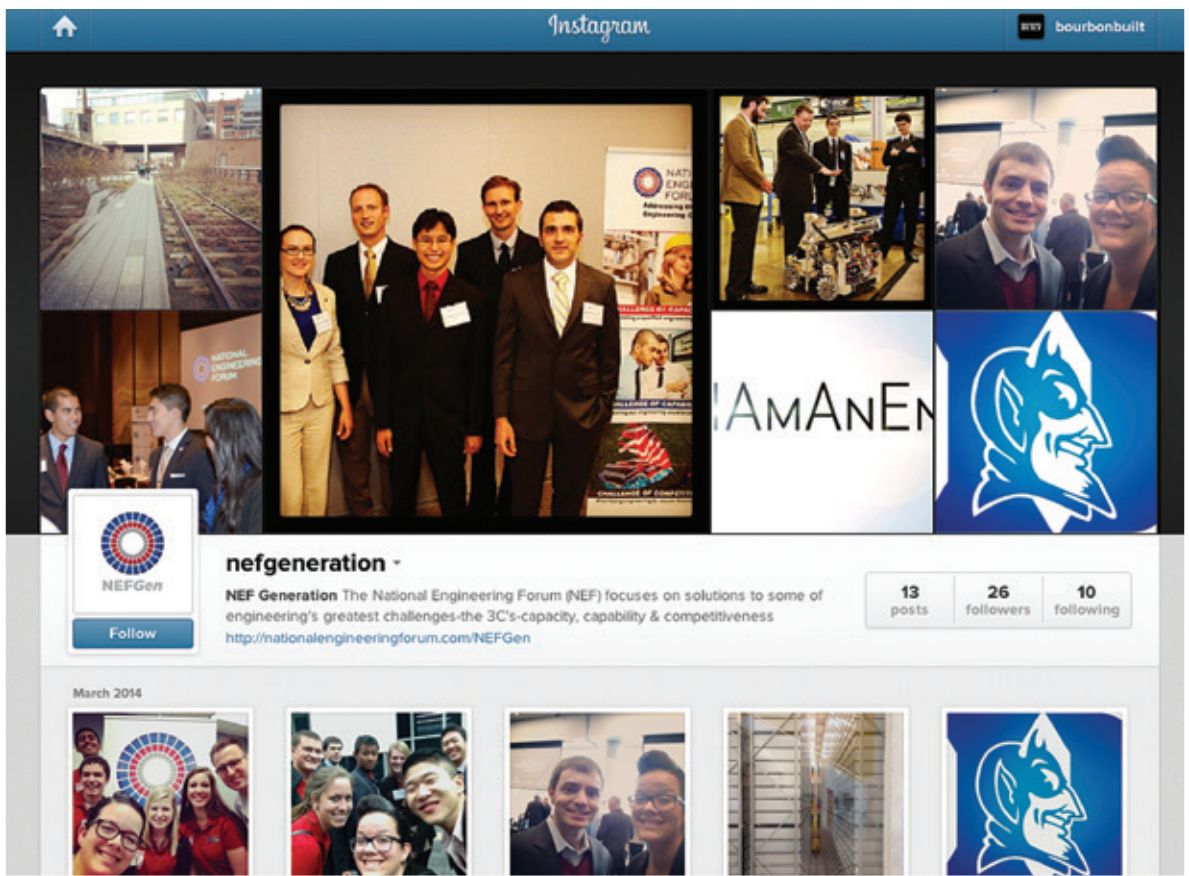
“When I was 9, a friend of mine had a pedal car; I asked him to flip it upside down, and once I understood it, I rushed home to build something similar with my Erector set. On my 10th birthday, my Dad gave me an electronics set. I was hooked. By junior high I was spending at least half my allowance on electronic parts. By high school, I was building high-power audio amplifiers and music light boxes. Even though I was a bit ‘nerdy,’ my friends actually thought I was ‘moderately cool’ (which was good enough for me) because I brought cool audio gear to the parties.”

RICO MALVAR, RETIRED DISTINGUISHED ENGINEER AND CHIEF SCIENTIST, MICROSOFT RESEARCH

HEATHKIT

“As a teenager, I loved building Heathkit projects – by soldering electronic components like resistors, capacitors, and diodes onto circuit boards. At the end of the project, I had built my very own clock or television. Those kits piqued my curiosity and taught me so much about electronics that I went on to earn a Ph.D. in electrical engineering.”

DR. RAY O. JOHNSON, SENIOR VICE PRESIDENT AND CHIEF TECHNOLOGY OFFICER, LOCKHEED MARTIN



 @NEFGeneration  @NatlEngForum

#ToysMakeTheEngineer #IamAnEngineer #NEFdialogues
#3Cs #capacity #capability #competitiveness

Looking Forward

Throughout 2014 and 2015, we are increasing our roster of partners, obtaining more grassroots input from across the country, learning about the challenges you face in our nation's engineering hubs, and listening to your solution ideas as we build the NEF agenda.

We look forward to discussing the 3C's in, Boston, Chicago, Atlanta, Phoenix, and more locations to be announced.

JOIN THE MOVEMENT

This is our opportunity to report to you and articulate our recent findings, which are only possible with your involvement in growing the NEF movement.

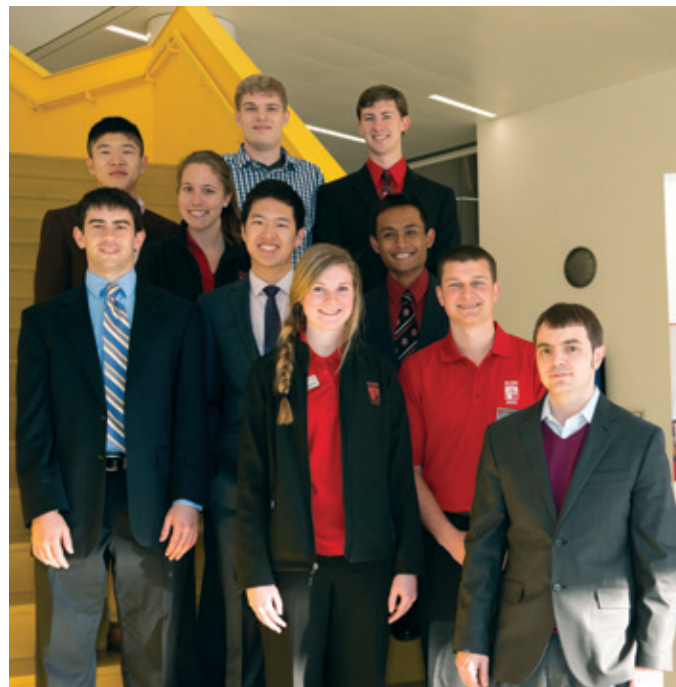
But this report is not the entire story. In the last year, NEF has reached thousands of people through our dialogues, our website, our newsletter, and through social media. It will take many more thousands to achieve the goal of finding solutions to the 3C's.

We call on you to help tell the American engineering story and share the NEF mission.

We thank you for your role in advancing the NEF movement, and we also encourage you to keep in mind colleagues and associates who aren't yet familiar with the National Engineering Forum. Please share this report with them. Communicating the impact of American engineering on our daily lives and the future of our nation is crucial. It will take all of us working together to find solutions to the 3C's and ensure a secure and prosperous future for generations to come.

CONNECT WITH NEF

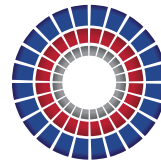
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- Join the NEF Generation on Instagram: **@nefgeneration**



ORGANIZATIONS REPRESENTED AT NEF REGIONAL DIALOGUES

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