

# EXECUTIVE REPORT

A QUARTERLY DIGEST FROM THE AEROSPACE INDUSTRIES ASSOCIATION



NEAL J. KEATING  
CHAIRMAN, PRESIDENT AND CHIEF EXECUTIVE OFFICER  
OF KAMAN CORPORATION  
SUPPORTS TEAM AMERICA ROCKETRY CHALLENGE



## EXECUTIVE REPORT

PRESIDENT'S

# Message

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As school doors have closed and relieved graduates have tossed their caps into the air, and we're reminded once again of one of the most difficult long-term challenges facing our industry – finding qualified young people to fill the pipeline of an aging workforce.

All technologically advanced U.S. industries face the same predicament. Without sufficient quality and quantity of science, technology, engineering and mathematics (STEM) professionals, the nation cannot remain vibrant and competitive. President Obama recognized this in his State of the Union address when he said “Maintaining our leadership in research and technology is crucial to America’s success,” noting that American innovation will hinge on educating our children.

For aerospace and defense, there’s even more at stake. Our workforce is technologically savvy, driving our positive trade balance, innovation and national security. And, for our defense sector the need for U.S.-born workers who are eligible for security clearances is of particular concern.

The STEM challenge is rooted in demographics. By 2015, half of Boeing’s 36,000 engineers will be able to retire, a common prospect for aerospace manufacturers. One quarter of U.S. aerospace workers with college degrees in a STEM discipline are at least 50 years old, as are 40 percent of those with STEM doctorates. We’re simply not graduating enough new engineers to succeed them.

Moreover, our education system contributes to the problem. In a 2009 global survey, American 15-year-olds ranked 19th among students in 65 countries in science literacy and 24th in math literacy.

AIA’s Steering Committee of senior human resource professionals and the Workforce Committee are the driving forces behind our efforts to meet the challenge.

A key AIA priority is to make sure that industry programs boosting STEM studies and careers are as efficient and effective as possible. AIA member companies, for instance, spend about \$160 million each year on STEM initiatives, supporting 500 activities.

However, based on today’s results, we’re not sure that this investment is generating a good return. Spending more on STEM efforts is not the answer, nor is it an

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ABOUT THE COVER: Neal Keating of Kaman Corporation stands with his son Jeremiah and the TARC team from Challenger Learning Center in Jacksonville Fla. Kaman’s Aerostructures division in Jacksonville sponsored the Challenger team to a top-twenty finish at the National Finals May 14. Kaman Corporation was also an event sponsor. Photo Credit: Patrick Carlson, AIA

option as we struggle to do our part to control federal debt and spending and overcome the effects of recession. We need to ensure the best results from STEM investments. That's a key reason that AIA founded the Business and Industry STEM Education Coalition. Its top objective is to align STEM initiatives with the workforce needs of industry.

Another challenge that AIA is tackling is making sure our members have good data to understand what the actual employment numbers and projections are, as well as how young professionals view our industry. AIA has teamed with Aviation Week for several years now to conduct research and each year the survey is more refined and useful.

We're also expanding our alliances with state and local STEM advocates and stakeholders this year. Federal programs can foster and support STEM initiatives, but those initiatives will be executed by dedicated state and community leaders. AIA's Workforce Committee, together with the National Defense Industrial Association's Workforce Division, will soon hold the second of four meetings this year with local leaders in U.S. aerospace hubs. The next is set for Florida in July. Others will be held later this year in Virginia and Arizona.

At the first meeting in April, Colorado Lt. Gov. Joseph Garcia — who also leads the state's Department of Higher Education — and other STEM advocates had the chance to meet local representatives of aerospace and defense companies. He heard firsthand about the needs and concerns of these local employers.



*AIA President and CEO Marion C. Blakey thanks Deputy Secretary of Defense William J. Lynn for speaking to approximately 200 industry executives at a dinner hosted by AIA during the Paris Air Show. AIA hosted a number of events for members in addition to supporting the DOD Military Aircraft Corral.*

Such interaction with executives who live and work in local communities is essential. It offers STEM advocates support and encouragement and reinforces to the public the urgent nature of their work. It makes clear where AIA member companies can help.

AIA member companies also make a positive impression locally when their employees mentor students who undertake STEM activities in the many programs we support such as FIRST Robotics, CyberWarrior, Raytheon MATHCOUNTS and the Real World Design Challenge. And more than 50,000 students have competed in the AIA Team America Rocketry Challenge (TARC) since its start in 2003.

TARC is making a difference. In a recent survey of TARC alumni, we found that 90 percent of eighth, ninth and 10th graders who participated said they plan to study math and science throughout high school, compared to the national average of 71 percent for math and 53 percent for science. Almost every participant surveyed (97 percent) held a favorable opinion

of individuals who pursue STEM careers. That's a potent result, given a popular culture that often portrays such individuals as geeks or villains.

AIA and its members will press on with efforts to better align STEM initiatives and develop metrics to measure the effectiveness of those investments. We all can't do enough to build stronger ties with STEM advocates in states and communities and to support employees in mentoring our future scientists, technologists, engineers and mathematicians.

AIA's STEM initiatives are closely tied to a broader campaign we're calling **Second to None** (see page 6). Chief among **Second to None's** objectives is to promote greater understanding of our industry among elected officials. As we make tough budget choices, it's critical that programs are there that will keep our workforce and industry strong for the future.

Marion C. Blakey  
*President & Chief Executive Officer*

# Q&A

WITH U.S. SECRETARY OF EDUCATION ARNE DUNCAN

The U.S. Senate confirmed **Arne Duncan** as secretary of Education on Jan. 20, 2009. He served as CEO of the Chicago Public Schools from June 2001 through 2008. Among his most significant accomplishments there are record numbers of the district's elementary school students meeting or exceeding state reading and math standards. Duncan graduated magna cum laude from Harvard University in 1987, majoring in sociology. In this Q&A, we discuss America's challenge of improving American students' achievements in science, technology, engineering and mathematics (STEM).



*Arne Duncan, U.S. Secretary of Education*

## “STEM CRISIS: AN OPPORTUNITY FOR INNOVATION”

**Our students aren't learning at a rate that will maintain America's role as an international leader. What can the federal government do to foster STEM education and students' interest in STEM careers?**

The president has made STEM a priority, and we're leveraging all the tools we have. At the Department of Education, our role is to focus on the overall education system, and the STEM crisis is a special and severe case of the overall systemic problem. We need higher standards and better assessments, and better systems to recruit, prepare, support, deploy, manage and lead teachers. We need more useful data about the students and teachers within the system that connects in stronger ways, and the courage to turn around persistently low-performing schools.

Particular to STEM, though, we need to focus on building capacity, motivating and inspiring kids and adults to pursue these often difficult subjects and enhancing public-private partnerships.

**What do you see as the critical next steps in improving U.S. students' achievement in STEM studies?**

A critical piece will be to reauthorize the No Child Left Behind Act of 2001 [itself a reauthorization of the Elementary and Secondary School Act (ESEA)]. It defines the federal role currently in ways that limit the curriculum and punish instead of reward performance. Fixing that is one of the top things we can do to improve STEM education.

**What do you see as the roles of state and local governments, community leadership and private industry in addressing the STEM crisis?**

Remember that the vast majority of dollars spent on education come from local and state funds. Ensuring we have great leaders at that level and that they do the right thing is critical.

But we also know that in many schools and districts, the STEM capacity isn't there to move the system in ways it needs to go. Ensuring that universities and private industries are true partners in school improvement efforts is critically important.

**What are the most important resources the aerospace and defense industry can bring to efforts to encourage students to pursue STEM-related studies?**

There's certainly lots that the aerospace and defense industry can do. You're known for building "cool stuff," so leveraging that to inspire and motivate students, parents and teachers to study more STEM is a no-brainer to me.

Engaging with chief state school officers, state legislators and districts in states where corporate headquarters are located is essential.

We're trying to create a groundswell of public opinion clamoring for meaningful school reform, so encouraging your employees to be "informed consumers" of education would also be a big help.

And while states and schools certainly welcome corporate and philanthropic giving, often the programs funded don't have a strong evidence base or the capacity to go to scale. Rethinking corporate-giving strategies might be really powerful. The STEM advocacy group Change the Equation has put some tools together to help with this.

**How do you expect the current federal fiscal environment to affect efforts to improve U.S. students' achievement in STEM studies?**

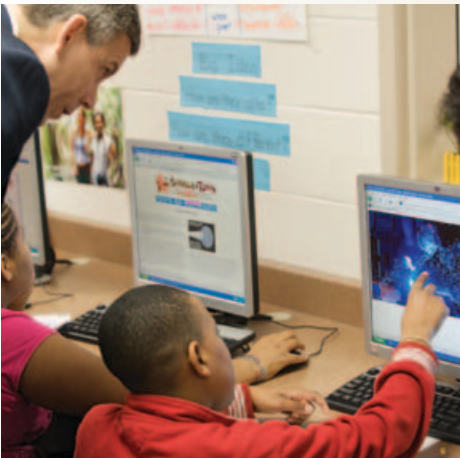
The current environment is certainly a difficult one. The challenge it presents can and should be embraced as an opportunity to make dramatic improvements. Enormous opportunities for improving the productivity of our education system lie ahead if we are smart, innovative and courageous in rethinking the status quo.

It's time to stop treating the problem of educational productivity as a grinding, eat-your-broccoli exercise. It's time to start treating it as an opportunity for innovation and accelerating progress.

**What is the federal government doing to better coordinate its STEM objectives and initiatives between the Department of Education and "end users," such as the Department of Defense and NASA?**

The America COMPETES Act calls on the executive branch to send Congress a comprehensive STEM education strategic plan. We've been helping to lead those efforts, and hope to have something for the public and partners to review soon.

There are already some signs of improved collaboration. NASA's Summer of Innovation was developed last year to target the motivation and inspiration issue and focuses squarely on middle school students. The president's fiscal year 2012 budget calls for a National Science Foundation-sponsored research agenda to accompany our resources dedicated to recruiting and preparing more STEM teachers.



*U.S. Secretary of Education Arne Duncan talks to students during a visit to Lake Hills Elementary School in Michigan City, Ind., in April. The visit showcased Michigan City Area Schools' partnerships with community organizations and higher education institutions, which together work to improve student achievement.*

**What can governments (federal, state and local) do to improve teachers' knowledge of and passion for STEM content? What can private industry do?**

We've made improving teaching quality a big part of our reform strategy. The president has set a goal to recruit and prepare 100,000 excellent new STEM teachers in 10 years.

For our students to reach higher academic standards, we'll also need to invest in and support our current teachers and schools—better professional development, more technology and smarter systems to leverage economies of scale.

Private industry can help by focusing on three things.

- Remember that the biggest player in education reform is the state, so get involved at the state level to advocate for meaningful reform legislation and policies.
- Make your employees well-educated consumers of education.
- Ensure your corporate philanthropy is spending money on programs with a strong evidence base that have the potential for going to scale.



AIA's Board of Governors, led by AIA Chairman Jim Albaugh (upper left photo), drew not only a record crowd but an impressive line-up of speakers. Among others, speakers included a panel on the industrial base and the Middle East, Vice Chief of the Air Force Gen. Philip Breedlove, Deputy Director of the National Reconnaissance Office Maj. Gen. Susan Mashiko, FAA Administrator Randy Babbitt and commentator Dr. Charles Krauthammer. Photo to the right is FAA Administrator Randy Babbitt with ITT CEO Steve Loranger.

## AIA BOARD MEETING BREAKS RECORDS

The Board of Governors meeting in Williamsburg, Va., May 25-26 broke records on two fronts: A record number of company representatives attended the meeting and eight new companies were added to the association's membership rolls. AIA's membership has increased 50 percent since January 2010.

Several news publications have reported on AIA's growth, noting that new budget austerity is drawing more companies to join the association and spurring increased participation from

members new and old. AIA's improved advocacy along with strength in numbers is combining to make membership in the association a very attractive option for many companies. In addition, the association's results have become stronger with a strategic plan that ties association employees' pay to performance.

We appreciate your membership and the work we are doing together to advance the aerospace and defense industry. ▼

### AIA approved the following new full members at its Board of Governors meetings in March and May:

AlliedBarton Security Services Crown, Inc.	Metron Aviation PARTsolutions, LLC	Sanmina-SCI Corporation Satair	Valent Aerostructures
Gentex Corporation	PTC	SIFCO Industries, Inc.	
IEC Electronics Corporation	Rhinestahl Corporation	Sila Solutions Group	

### AIA also approved the following new associate members in March and May:

300 Below	Dassault Systemes	Phillips Screw Company	ThyssenKrupp Aerospace North America
Allied Barton Security Services	Glovia International	Safran USA, Inc.	The World Academy
AMI Metals	Lintech Components Co., Inc.	Scot Forge Corporation	VISTAGY
ARINC Engineering Services, LLC	Moritz Aerospace	Swift Engineering	
Benchmark Electronics, Inc.	Oceanit	Tactair Fluid Controls	
	Pelican Products	TCS America	

## SECOND TO NONE CAMPAIGN

**Second to None.** No doubt about it, that's the U.S. aerospace and defense industry. We produce the best equipment, have unrivaled technology and our workforce is unparalleled in bringing countless innovations to our industry and the nation. It's also the name of a new campaign that AIA has launched to help member companies tell their story to elected officials in Washington and across the country.

It's important that our nation face the budget deficit head on. If we don't, we will be in serious trouble. However, reductions must be done carefully to avoid unintended consequences. As Chairman Jim Albaugh and Vice Chairman Dave Hess wrote in their May 17 letter to the membership, "Our industry is facing one of its greatest challenges in history. Federal funding for many aspects of the aerospace and defense industry is at risk, both now and in the future."

The campaign will help educate Congress, the administration and the public on the impact of ill-considered cuts to critical federal spending that will jeopardize our national security, civil and space transportation infrastructure and economy. With support from an outside consultant team, a combination of shoe leather on the Hill, grassroots activities, and media outreach along with studies and events sponsored by think tanks, we'll strive to build long-term support for the aerospace and defense industry.

A new website – [SecondtoNone.org](http://SecondtoNone.org) – with important facts and information, along with a toolkit with messages, key facts and statistics and other materials, will help AIA members have a common, overarching message. Working together, we will be more effective and the need to maintain a strong industry will be better understood. ▼

# AEROSPACE INDUSTRIES ASSOCIATION

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APV Manufacturing & Engineering Co.	Cling's Manufacturing	Ingenium	Infotech Enterprises America Inc.	Microsemi Corporation	Parkway Products, Inc.	Sechan Electronics, Inc.	Tedopres International, Inc.	Windings, Inc.
ARINC Engineering Services LLC	CMC Electronics	Inmedius	InterConnect Wiring	Mid-State Aerospace Inc.	PAS Technologies Inc.	SELEX Galileo Inc.	TEK Precision Co. Ltd.	X-Ray Industries
Arkwin Industries, Inc.	Co-Operative Industries Defense, LLC	InterConnect Wiring		Mil Spec Sales Co.	PCC Airfoils, LLC	Senior Aerospace	Telephonics Corporation	Yarde Metals
				Millitech, Inc.	Pelican Products, Inc.	Serco Inc.	The Fercro Group	
				Modern Industries	Perillo Industries, Inc.	Service Steel Aerospace	The Wharton School - Executive Education	

# TARC LEADS THE WAY

The strength of the Team America Rocketry Challenge (TARC) was on display during its ninth annual national championship May 14 at Great Meadow in The Plains, Va., near Washington. The U.S. champions went on to the Paris Air Show, and proving their mettle won the International Fly-off against United Kingdom and French teams.

TARC gives American middle and high school students the chance to experience hands-on scientific problem-solving in a collaborative, team setting. Those are experiences and settings shared by aerospace pioneers Orville and Wilbur Wright and

Robert H. Goddard, as well as every professional who works in science, technology, engineering and mathematics (STEM).

Consider John Easum, president of this year's winning team, from Heath, Texas' Rockwall-Heath High School, who in the fall plans to attend Embry-Riddle Aeronautical University.

"This contest is why I'm going into aerospace," John said at the conclusion of this year's meet. "It's hands-on, and you experience a lot of failures, but then you troubleshoot and end up with success. It's a really good feeling."

The hands-on approach seems to hook supporters and spectators, too. Neal Keating, chairman, president and CEO of Kaman Corporation, brought his son, Jeremiah, to watch the top 100 teams (including one sponsored by Kaman) compete in the finals. "After all the launches," Keating said, "we were still saying, 'Wow!'"

A new video of the contest posted on AIA's website captures the excitement, thrill and benefits that TARC has brought to the STEM scene since 2003 when it was launched as part of the centennial celebration of the Wright Brothers' first flight.

In the video, Aurora Flight Sciences director of development and operations Greg Stewart sums up the value of TARC, "We know from experience that kids that who have done this (TARC) are better prepared and make better employees than ones that haven't."

Of course, what makes TARC possible is the valued support from sponsors and partners. The National Association of Rocketry qualifies the teams across the country and more than 100 NAR members are on the field the day of the finals making sure everything goes like clockwork. And, of course, 33 AIA member companies' support is key.

Easum and his teammates traveled to the Paris Air Show in June to compete in the international fly-off courtesy of Raytheon Company. Raytheon also provides travel for all the teams at the show, hosts the presentation competition and makes sure the U.S. team is well taken care of. For Raytheon, supporting TARC is "a bet today that will pay off down the road," said Pam Wickham, vice president of Corporate Affairs and Communications. "Twenty years from now we have to make sure that there is a robust STEM pipeline in place so that we continue to innovate as an industry and as a country."

Lockheed Martin also provides \$15,000 in sponsorships to the top teams. The Defense Department, NASA, the American Association of Physics Teachers and the model rocket manufacturer Estes also do their part to ensure the contest's success.

Next year all eyes will be on TARC as it celebrates its tenth anniversary. Japan has been invited to join the 2012 event, and with another yet unannounced team, we're looking forward to an expanded international rocketry fly-off – right before the Olympic Games in London.

An international rocketry Olympiad? Now that's something!



International Rocketry Team Champions outside the Raytheon Chalet at the Paris Air Show. (left to right: Landon Fischer, Colt McNally, John Easum, Michael Garritsen)

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