Executive Comment

Workforce Development

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A “Crisis in Aerospace”- that was how Aviation Week and Space Technology first described the impending shortfall of scientists and engineers. This description recognized that the tremendous strides made in the aerospace profession were the result of having an innovative and highly professional workforce of scientists and engineers. These talented professionals connected the world with advances in aviation and allowed us to walk on the moon, explore the universe with our deep-space probes and commercialize space.

The shortfall in future scientists and engineers is caused by several factors: an aging workforce comprised heavily of “Baby Boomers” (those born between 1946 and 1964), a decline in both government and industry research and development investments, and an inadequate number of students pursuing undergraduate and graduate degrees in Science, Technology, Engineering and Mathematics (STEM).

Over the past several years, the U.S. National Science Foundation and U.S. National Academy of Engineering and Science chartered studies to identify the causes and recommend mitigating actions for the shortfall. These studies have prompted the U.S. Congress to create the Interagency Aerospace Revitalization Task Force. Despite all of these actions, metrics to date indicate little progress. The workforce crisis, or “silver tsunami,” is still approaching!
In May of 2008, the American Institute of Aeronautics and Astronautics hosted a forum in Washington, DC entitled “Working Together to Build the Aerospace Workforce of Tomorrow.” This forum identified key issues and specific actions necessary to overcome the impending workforce shortfalls. Those issues and actions are listed below and are best summarized by the task of **Attracting, Encouraging and Inspiring Top Talent**. The forum also identified that the shortfall is not unique to the United States but also is a challenge in Japan and Europe.

From the perspective of those growing up in the United States, supersonic jets and the Apollo program got us excited about a career in aerospace. Aerospace was a prestigious industry whose accomplishments filled the media every day – it was the employer of choice. Well, times have changed! The advances of aerospace have become commonplace to our younger generation and the aerospace profession has lost status in our society. **Therefore, an action must be to rekindle the enthusiasm for aerospace in our youth.** They must feel the excitement and aspire to be part of the aerospace profession.

A further challenge is that current educational and social values no longer emphasize a strong background in mathematics and science. Throughout the educational system, the discipline, work ethic and technical focus that are the foundation of careers in science and engineering are not appropriately valued and encouraged. In many cases, school systems lack adequate numbers of teachers qualified to teach mathematics and science. Thus, even those students attracted to a career in science and engineering often fail to get the preparation needed to complete a degree in science, engineering or mathematics. **Therefore, our second action must be to reinvigorate the enthusiasm for and the teaching of Science, Technology, Engineering and Mathematics in our pre-college education system.**

Many of our colleges experience significant drop-out rates in science and engineering curriculum due to loss of interest and difficulty understanding the application of the science and mathematics principles. While our colleges must provide a strong and balanced foundation in mathematics and engineering science, they must also provide early exposure to hands-on design and research opportunities. In fact, research experiences significantly increase the number of graduates who pursue advanced degrees. **Therefore an important action is to provide our undergraduate and graduate students hands-on design projects and research opportunities throughout their college career.**

Attracting young people to the pursuit of careers in aerospace is only the beginning. These young professionals must be given the opportunity to do exciting work that makes a contribution to society. They must receive recognition for their professional abilities and their efforts as part of a team. They must receive career mentoring and the opportunity to lead a balanced life and they must be compensated for performance – not time in the job. **Thus, we must create the work environment that provides for an exciting, challenging and rewarding career and life style.**

Each of these actions is necessary if we are to stimulate and nurture a “Passion for Aerospace” and build that workforce of tomorrow. While there are certainly actions by the government that can facilitate many of these necessary actions, we, the professionals of aerospace, are best equipped to rekindle the “Passion for Aerospace.” We are best equipped to reach out and inspire young people with the contributions of aerospace to society. We are best equipped to provide tutors and mentors to our schools systems and to our young professionals. We have the ability to influence college curriculums to provide earlier hands-on experience and provide internships and research opportunities to our college students. We have the responsibility to create the work environment that excites young professionals and once again makes aerospace the employer of choice.

**The bottom-line is that creating the global aerospace workforce of tomorrow is our task. Rekindle the passion for aerospace that we all enjoy and the workforce of tomorrow will follow.**