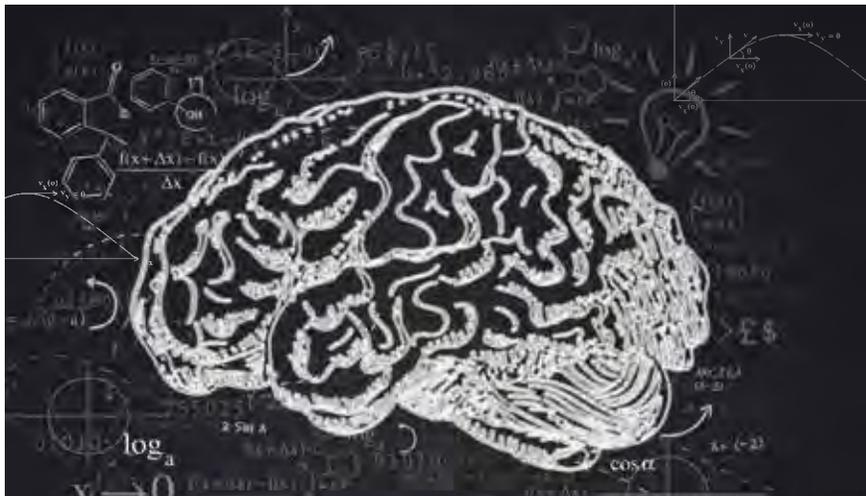


## STEM DILEMMA

The U.S. science, technology, engineering, and mathematics education pipeline is not producing enough talent despite high demand



recruitment tool for the undergraduate program. But even with such outreach, finding qualified students is challenging.

According to the National Science and Technology Council, demand for professionals in STEM fields is projected to outpace the supply of trained workers. A 2012 report by the President's Council of Advisors on Science and Technology estimates U.S. industries will be about one million STEM graduates short within the next decade.

USGIF CEO Keith Masback said furthermore, national security jobs aren't easily filled with young, international talent, as is the case with many other industries.

"There are unique challenges when it comes to national security, and you can't outsource it," he said. "That, by definition, limits the scope even further."

Roadblocks to growing the STEM pool include real and perceived obstacles.

"Starting with elementary school, STEM are perceived to be difficult topics," said Peggy Agouris, acting dean of George Mason University's College of Science and a USGIF board member. "But also, these are cumulative fields. So if there is a gap in knowledge, it's hard to catch up later on."

The U.S. population as a whole is unfamiliar with the range of jobs in geospatial sciences, even though they drive applications we use daily – from Foursquare to Google Maps. This is a problem when it's time for parents and teachers to guide students. For those who have heard of the field, Agouris said, shows like "The Big Bang Theory," where an awkward physicist meets a pretty girl, don't help matters, Agouris said.

"You may laugh, but it's true, and it's done significant damage to recruiting in the STEM field," Agouris said. "I've heard qualified kids say they don't want to go to a strong STEM school because it's for geeks."

Young professionals agree K-12 exposure is imperative, and are becoming more involved with raising awareness. Sam Unger, a member of USGIF's Young Professionals Group (YPG) who works at TASC, led an effort last year to help seniors at a Northern Virginia high school with GIS projects. This year, the mentoring initiative is expanding to more schools.

"Kids get really excited when they not only understand the application, but when they get things that they use on a daily basis," Unger said.

There are countless ways to capture students' imaginations and get them fired up about STEM.

"For any of these kids, it's a trip to an air show, a NASA facility, or a movie that inspired them, and that was enough to say, 'I think I want to do this,'" Masback said. "But without a concerted, collaborative effort among academia, industry, and the government, there won't be an infrastructure to educate and train them with the knowledge and skills to follow that dream. It takes a village." ■

To learn more about the YPG, contact Carrie Drake at [carrie.drake@usgif.org](mailto:carrie.drake@usgif.org).

**A**SK A LEADER in the field of geospatial sciences about the inspiration that long ago catapulted him or her down a certain career path, and you're likely to hear about one pivotal moment.

For the National Geospatial-Intelligence Agency's (NGA) InnoVision Director Doug McGovern, it was the race to the moon.

"That was a huge catalyst for my interest in science and technology," he said.

But McGovern and his peers are quick to admit they face a rocky road in preparing today's young people for careers in science, technology, engineering, and mathematics (STEM) – and that academic curricula needs to reflect the quickly changing and expanding needs of employers.

But it starts with getting students excited about learning and raising awareness about the many opportunities in geospatial science.

"How do we inspire that same passion in people today?" McGovern asked.

This was among the questions raised at a panel briefing on Capitol Hill in December, where representatives from the United States Geospatial Intelligence Foundation (USGIF), NGA, industry, and academia gathered to discuss the lack of a strong STEM pipeline and what it means for the nation's geospatial workforce of the future.

"The demand is tremendous," said Michael Richardson, a researcher at Rochester Institute of Technology's (RIT) Carlson Center for Imaging Science (CIS). "In the past decade, we have achieved 100 percent placement for our graduates."

Currently, the graduate program has approximately 100 students, but RIT's goal is to double enrollment in the next few years. CIS offers a paid, 12-week internship for high school juniors, which exposes them to imaging science and acts as a

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