

**Testimony of Mr. Andrew J. Partynski,
Congressional Field Hearing on STEM Education in Action
Committee of Science Space & Technology
Subcommittee on Research & Science Education
April 30, 2012**

Good morning Representative Brooks and committee members. My name is Andrew Partynski and I am the Chief Technology Officer for SAIC's Systems and Technology Solutions business, which is headquartered in Huntsville, Alabama. Let me first say I am honored to have the opportunity to appear before you today. I would also like to thank Bob Jones High School for your wonderful hospitality.

SAIC is a FORTUNE 500® scientific, engineering and technology applications company that uses its deep domain knowledge to solve problems of vital importance to the nation and the world in national security, energy & environment, health and cyber security. SAIC employs approximately 41,000 personnel worldwide with approximately 10,000 employees with advanced degrees and over 20,000 employees with security clearances. SAIC is proud of 40 years of continuous growth with approximately \$11 billion in annual revenues for fiscal year 2011.

SAIC is justifiably proud of the caliber of our personnel and of our ability to attract and retain skilled senior engineers and scientists. A large percentage of our SAIC's 41,000 employees work in technical fields, ranging from information technology, energy, cyber security, and life sciences. Our technical staff professional education consists of 59% with Bachelor's degrees, 36% with Masters Degrees, and 5% with Doctoral degrees.

Our accomplished employees contribute substantially to the success of our customers; they also serve as leaders in their fields, both within SAIC and in the national and global technical community. SAIC experts serve as board chairs, members, advisors, and instructors for dozens of government boards, science and technical organizations, and universities. We have dozens of technical communities of practice (CoP) contributing to our overall capabilities across the enterprise with innovative thinking for new perspectives and solutions. This deep and diverse foundation of talent underpins SAIC's reputation as a leading science and technology company.

Huntsville Community

The 2010 American Community Survey (performed by the Census) confirms that the Huntsville Metro Area has the highest per capita concentration of engineers in the country with 11,392 engineers making up 6.0% of the total employed residents. San Jose/Sunnyvale/Santa Clara is second at 5.1%. We also rank second in the nation, just behind San Jose, in high-tech workers overall. These characteristics of our workforce are critical to our future economic growth – we must maintain and build on our assets as we diversify into emerging markets like biotech.

SAIC's K-12 STEM Involvement

I am the regional coordinator of Science, Technology, Engineering and Mathematics (STEM) initiatives in Huntsville and am part of a corporate committee that focuses on STEM. It's imperative that corporations like SAIC remain steadfast in their commitment to being responsible citizens in the regions where we operate. For me, a key component of corporate responsibility is in helping build the future workforce. More importantly, it is essential for our national security because our economy has been and will continue to be based upon a foundation of technology and innovation. This requires a STEM-educated workforce, which in turn requires a pipeline of students inspired, engaged and educated in STEM disciplines.

A major focus of SAIC's STEM program is to help provide our employees meaningful opportunities to volunteer in their communities. Our employees' actions will inspire students directly through their interactions with SAIC, will ignite a peer-to-peer spread of interest in volunteering within the SAIC employee population, and indirectly stimulate viral student-to-student interest in STEM. Many SAIC employees in Huntsville volunteer their time and talents helping to inspire, engage and educate K-12 students in STEM related activities with a variety of programs.

We have taken a number of steps to promote STEM including providing financial resources, supporting strategic initiatives and a providing mission focus. But the most important component of our program is our workforce. We consistently emphasize that together we can make a major difference if we deploy SAIC's "marching army" across the country. The components of our

STEM program are designed to help make this possible. A few of the programs are described below.

FIRST

SAIC has selected *FIRST* (For Inspiration and Recognition of Science and Technology) as one of our strategic initiative because *FIRST* offers elementary, middle and high-school students a series of popular extracurricular activities structured around robotics competitions, and includes contests at the local, regional and national levels. The organization is well developed and scalable as new teams are created, giving SAIC employees a variety of ways to get involved. The mission of *FIRST* is to inspire young people to be science and technology leaders, by engaging them in exciting mentor-based programs that build science, engineering and technology skills, that inspire innovation, and that foster well-rounded life capabilities including self-confidence, communication, and leadership. Simply put, it provide the type of inspiration in students that is the catalyst needed for getting students interested in technical fields.

Locally, SAIC supports a dozen *FIRST* Robotics and *FIRST* Lego teams – each with SAIC employees actively involved in mentoring and coaching the teams.

Project Lead the Way (PLTW)

Additionally, SAIC has selected Project Lead the Way (PLTW) as another of its strategic initiatives because the program produces demonstrated results, offers a ready-made infrastructure in schools and districts across the country and offers many ways for SAIC employees to engage in their communities.

In fact, a key to PLTW's success is its ability to convey the real-world relevance of classroom lessons to students, and this ability relies heavily on corporate supporters such as SAIC. PLTW's mission is to ensure that America succeeds in the increasingly high-tech and high-skills global economy by partnering with middle schools and high schools to prepare students to be the most innovative and productive in the world. It provides middle and high-school students with activities-based, project-based and problem-based learning through engineering and biology

curricula; it trains teachers to use these curricula effectively; and assists schools with the capital costs necessary for equipping their facilities to teach the curricula.

Most recently in Huntsville, SAIC funded and assisted in the start-up of the PLTW engineering curriculum at New Century Technology High School. We're now involved with and are working with PLTW on cyber technologies for their upcoming cyber curriculum as well. Given the importance of this area of focus and critical nature for educating future leaders in cyber, we're particularly excited about this opportunity.

One of SAIC's senior managers currently co-chairs the Tennessee Valley PLTW strategy under Air Space & Missile Defense Association (ASMDA) & National Defense Industrial Association (NDIA) where the PLTW curriculum startup process will be streamlined for all three school districts in Madison County. The goal of the joint committee is to gain synergy in supporting all three school district superintendents that are piloting PLTW in a high school. They are developing best practices for deploying the curriculum allowing all the schools to leverage startup streamlined process (typically each school has to figure out how to start the program on their own). This process allows any school to use the PLTW Purchasing Manual to make a PLTW purchase request for each class, the STEM committee then evaluates and approves requests. Schools are then able to order PLTW equipment and receive reimbursement from the STEM committee.

While this effort was initiated for high schools and middle schools, plans are underway for it to be expanded to K-8 schools in the coming years.

CyberNEXS

Again, realizing the importance of cyber and the increased threat our country will face in this area; SAIC provided our specialized 10-week course in cyber security to the Huntsville City School system called CyberNEXS, at no cost to the system.

We deployed cyber mentors and course materials to teachers and students and helped with the program at the eight participating Huntsville schools. Two of the schools that went through this

Cyber training have qualified through two levels of National CyberPatriot competition that SAIC's supports with our CyberNEXS system.

CyberPatriot, the US Air Force Association's premiere national high school cyber defense competition, was created to inspire high school students toward careers in cyber security or other science, technology, engineering, and mathematics disciplines critical to our nation's future.

By investing in critical technologies and curriculum, we're working to develop and inspire future leaders in this extremely critical area of emphasis.

Alabama A+ College Ready

Another strategic involvement area for SAIC is A+ College Ready. The mission of this state-wide program is to increase dramatically the number of students in Alabama taking math, science, and English AP courses, earning qualifying scores on advanced placement (AP) exams and ultimately attending and succeeding in college. The SAIC contribution of \$100,000 is part of a \$1 million commitment made by the corporate community in Huntsville and Madison County to implement the AP program in 10 local high schools – making this an exemplary public-private partnership.

Results confirm that the program is making an impact. After just one year in the A+ College Ready program, 43 Alabama high schools showed an average 108% increase in AP qualifying scores – 13 times the national average of 8.1%.

Alabama's percent increase in qualifying scores on AP exams from 2008 – 2011 ranks Alabama #1 among all 50 states in qualifying scores on AP MSE exams and minority qualifying scores on AP MSE exams.

Strategic University Alliance – UAHuntsville

Our focus on STEM certainly doesn't end with K-12. SAIC has created a set of Strategic University Alliances to focus on-campus activities in support of the company's strategic goals, particularly by strengthening the science and technology core of SAIC.

The Strategic University Alliance schools were chosen by SAIC's University Relations Committee after a rigorous, collaborative process that included our business leadership, human resources/recruiting, the Office of Technology, and others. UAHuntsville is one of the original seven schools that were selected because of their strengths in areas important to our strategic plans for growth and because they're a good source for recruiting interns and recent graduates. I serve as the official SAIC representative for UAHuntsville. We have allocated discretionary funding to support the activities with the university and are supported by an Advisory Council drawn from stakeholders across the company.

Together, this team sets the goals and objectives for each campus and determines how to best invest the Corporate Discretionary Resource (CDR) funding. We fund and collaborate with the university on technology developments, curricula, and even work to jointly bid on research projects. Our efforts in developing curricula with the university will help support the needs of the corporation, our customers and the entire Huntsville community. As an example we have supported the development of a Masters program in Optical Systems Engineering, a PhD program in modeling and simulation and we are currently working on a graduate level program for Operations Research and Systems Analysis (ORSA).

SAIC also provides an annual scholarship based on case studies in complex systems: this year's topic was designing a hospital for the 21 century. This scholarship for UAHuntsville students identifies some of the best and brightest talent at the university demonstrating critical thinking in complex systems problems.

Our executive leadership team has seen the value in these efforts and have commented that SAIC will have continued growth and investment in Huntsville due to the fact that Huntsville has a unique opportunity for growth with a DoD-NASA business opportunities. They recognize that the people of this area are well-educated and technically inclined. ... "They want to do what's best for the country."

Comments/Conclusion

As the regional coordinator of STEM initiatives in Huntsville, I serve on a SAIC corporate committee that focuses on STEM. As a premier science and engineering company that prides

itself on its technical workforce in an ever increasing technical world, SAIC strives to recruit and retain the nation's best and brightest to support our customers. The ability to find locally skilled talent is a key component to effectively servicing of our Government customer. The current environment in Huntsville when recruiting for Engineering/ Software Engineering candidates requires that we compete for the same existing finite pool of talent.

Due to the current growth in Huntsville and attendant job opportunities, we have had to recruit and relocate qualified people for across the country because of the shortage of available and technically skilled engineers, especially those that possess knowledge and experience with the newer design and development tools and programming languages.

The difficulty to recruit these candidates in a timely manner has been specifically acknowledged by our customers on Redstone Arsenal. If the trend of the past five years can act as an indicator for the near future, my fear is that our ability to locate, recruit, and retain the necessary talent locally will become increasingly more difficult.

Our experience shows that talent of all ages self-selects into working on big technical problems. The bigger the problem, the more inspired and attracted talented people become by that challenge. Once attracted to the technical challenge, these students naturally began "see" how they might contribute and pursue educational opportunities to address these challenges. SAIC attracts very talented people the same way, we work on the nation's toughest challenges and bright people from all backgrounds find ways to contribute. Because we draw on this talent pool SAIC understands we have a responsibility to sustain this pipeline of bright young talented people.

To prepare for this current and future need SAIC has initiated several thrusts. First we have established a relationship with UAHuntsville by working on creating and tailoring the degree programs, bidding on cooperative research projects, providing scholarships to identify key talent and working to provide internships at SAIC and ultimately hiring the graduates. Our stated goal with UAHunstville is to help it be recognized as a national go to school for the disciplines needed by our customers and the Huntsville community. We also understand that to inspire our younger generation to get into STEM fields we have to attract them early. To do this SAIC has

strategically selected to support FIRST robotics, Project Lead the Way and also Alabama A+ College ready.

FIRST offers elementary, middle and high-school students a series of popular extracurricular activities structured around robotics competitions, and includes contests at the local, regional and national levels. Locally we support a dozen teams from elementary to high school – and we are only one of a dozen SAIC entities that have similar support efforts across the country..

SAIC also selected Project Lead the Way (PLTW) as one of its strategic initiatives because the program produces demonstrated results, it offers a ready-made infrastructure already present in schools and districts across the country, and it offers many ways for SAIC employees to engage in their communities.

PLTW Regional Strategy

We have funded the startup of PLTW engineering curriculum at New Century Technology High School.

We volunteered to co-chair the Tennessee Valley PLTW Strategy under ASMDA & NDIA. The goal of the joint committee is to gain synergy in supporting all three school district superintendents that are piloting PLTW in a high school. SAIC volunteers are working to create an environment where best practices for deploying the curriculum can be shared across the three school systems. They are also creating a one stop shop capability to support the needs of the PLTW teachers including finding sponsors to fund courses, recruit and place mentors for the classroom and setup industry and government internships for students to explore STEM career fields. The strategy focuses on providing these PLTW support services for high schools first but will expand to support K-8 schools in the coming years. Many challenges are being worked by this committee

CyberNEXS

SAIC coordinated and deployed a 10-week CyberNEXS curriculum to eight schools in the Huntsville City Schools district and organized Cyber mentors from within SAIC (5) and external

to SAIC (3) to work with the selected Huntsville City Schools. Two of the schools that went through this cyber training have qualified through two levels of National Cyber Patriot competition.

Cyber Curriculum

SAIC worked with PLTW to develop technologies for the upcoming cyber curriculum. Huntsville's Grissom High School was chosen as one of two schools nationally to pilot this new cyber security curriculum for high schools. Volunteer mentors from SAIC have supported both the teacher and the students in this effort to inspire and educate these cyber learners. SAIC also enriched their cyber learning environment by providing cyber simulations and other hands on cyber experiences in the Huntsville City Schools.

Alabama A+ College Ready

SAIC also contributed \$100,000 to Alabama A+ College Ready as part of a \$1 million commitment made by the corporate community in Huntsville and Madison County to implement the AP program in 10 local high schools – making this an exemplary public-private partnership. After just one year in the A+ College Ready program, 43 Alabama high schools showed an average 108% increase in AP qualifying scores – 13 times the national average of 8.1%. Alabama's percent increase in qualifying scores on AP exams from 2008 – 2011 ranks Alabama #1 among all 50 states in Qualifying scores on AP MSE exams and Minority qualifying scores on AP MSE exams

In Closing

One of the greatest challenges for any company in the technical fields today is finding and attracting top talent in all technical areas. Our greatest method of attraction is inspiration in the missions and to the contributions to our nation and society. Our government was able to achieve this rallying vision under President Kennedy when he announced the national challenge to go to the moon. This vision created the largest increase in enrollment in STEM fields in US history. Today we need an equally visionary challenge that inspires the imagination and passion of our young people. This challenge needs to go beyond typical rhetoric and stimulus and strike at

hearts and minds of the generation that uses technology transparently and can multiplex many activities once. Once inspired, this generation - these young people, I believe will rise to the challenge with passion and innovation that will make us proud to be Americans.