Key Issues 2013

Issue: PROMOTE AND INCENTIVIZE PUBLIC-PRIVATE PARTNERSHIPS THAT IMPROVE TECHNOLOGY TRANSITION TO END USERS FROM THE NATION'S AEROSPACE RESEARCH LABORATORIES.

Background: In 2002, the President's Commission on Aerospace recognized that "partnerships and interconnectedness are keys to competitiveness in the future….We need to create an environment and the incentives that will foster private-public partnerships." The report also recognized the need to reduce transition time from technology demonstration to operational capability. In order to do so, industry and the government must create an environment that will accelerate the transition of research into application.

However, recent studies indicate that US aerospace companies lack sufficient ability to access and capitalize on research conducted by the Nation's government research laboratories. For example, a report by the NASA Inspector General (IG) discusses a lack of adequate commercialization knowledge within the program managers at NASA; while a study by the National Academies points to a need for more integrated research activity leading to flight verification in NASA's aeronautics research programs. In spite of agreement on the overall goal for technology transition of government aerospace research, these studies indicate insufficient investment to enable development and demonstration of research to sufficient maturity for transition to other federal stakeholders and industry, and ultimately into fielded products.

At the same time, industry needs incentives to actively pursue government-funded basic research which industry would then adopt and mature. Policies and programs should be put in place to encourage and incentivize research partnerships between government and private industry from the critical early requirements phase to research completion and product deployment. Addressing a role that has developed out of the execution of the National Aeronautics Research & Development Plan, the Office of Science and Technology Policy has begun reaching out to the aerospace community to identify where the meaningful exchange and transition of research and technology from federal research programs to industry is and should take place. Congress should foster this effort holding government laboratories accountable for sound management practices and commitments to progress toward research goals for maturing and transitioning technology.

Recommendation: Congress should:
- Direct the Administration to develop a partnership with federal agencies and offices that oversee federal aeronautics research, development, testing and evaluation (RDT&E) programs and aeronautics RDT&E infrastructure and engage with private aerospace stakeholders to develop and maintain a plan for technology transition that answers the directives of the National Aeronautics Research and Development Plan and meets the needs of end use stakeholders. This initiative should require the Administration to provide regular status updates to Congress covering technology transition, including what end user goals or needs the transitioned technology is meeting, whether the technology is reaching an appropriate level of maturity to meet those goals or needs, where more cooperation is needed, and what resources will be necessary to meet national goals and needs.
- Devote Congressional oversight activities to areas such as aeronautics research & development, accelerating technology transition from federal laboratories to commercial viability, technology transition development tax incentives, business and general aviation topics and protection of background intellectual property rights. This oversight should include focus on addressing the challenge in transitioning technology research from federal agencies into development programs within industry and assess whether that the right mechanisms are in place to transition technology which has reached the proper level of maturity for the private sector to take on, and ensure that end users are given the opportunity to inform development of programs so that the technology being transitioned addresses needs of those stakeholders.
- Develop a subcommittee of the Aerospace Caucus focused upon aviation and aviation R&D policy issues. The initial focus of this subcommittee should be focused upon transitioning technology research from federal agencies into development programs within industry effectively to foster national capabilities and economic growth and sustainability.

Issue: ENABLING SUSTAINED DEEP SPACE EXPLORATION WITH A BROAD VISION

Background: Human and robotic exploration beyond Earth orbit has great scientific, technological, and cultural significance. Leadership in this arena inspires populations, attracts many to scientific and engineering careers, and generates technology advances with associated economic, national security, and social benefits. Recent and highly noteworthy successes include Mars exploration and epic discoveries in space sciences. However, sustained realization of these benefits requires full and sustained funding at levels sufficient to achieve exploration objectives as well as on-going advances and achievements for which each generation can take some ownership. Challenges that must be addressed to assure cost effective and successful deep space exploration over the coming decades include: Reliable and progressively more capable transportation systems; technologies that enable fully synergistic human and robotic operations; means to counter or avoid the adverse effects on humans of space radiation and micro-gravity-derived de-conditioning; and means to generate the required power for operations in deep space. More must be done to assure that the limited resources that can be made available for advancing deep space exploration are wisely applied toward well-conceived goals.

Recommendations: To both realize the technical success of deep space exploration initiatives and help assure that the enterprise has broad vision that can maintain support for generations to come, the U.S. national space policy should:

- Address both fundamental science and human aspirations by pursuing long-term, visionary deep space exploration objectives that include clearly-defined and meaningful milestones every decade that each result in significant achievements
- Accelerate development of launch and flight vehicle systems that enable large cargos and humans to access destinations beyond Earth orbit that will facilitate new NASA-led successes in human exploration
- Expand productive international exploration collaborations, but with a continuing national focus on exploration enterprise contributions that sustain US exploration leadership and/or provide national security benefits
- Allocate some space transportation investment resources to advancing in-space propulsion system development
- Pursue missions that derive benefits from synergistic usage of robotics and humans. These would utilize advanced robotic capabilities to lead the way at the most hazardous edges of an expanding space exploration envelope and would apply humans where the risk is acceptable and the resulting higher cognitive function and more versatile physical capabilities are most beneficial
- Develop a spectrum of technologies that can supply the power needed for deep space missions – include resumption of Pu-238 production for use on the most solar-power-constrained exploration missions, and complete development of power generation systems that utilize this scarce material more efficiently
- Fully address the radiation and micro/partial-gravity life science challenges of human missions into deep space while also investigating counter measures and mitigation methods (including technological means to enable shorter mission times).

Issue: COMPLETE PUBLIC/PRIVATE HUMAN EARTH-ORBIT ACCESS PROGRAMS IN A TIMELY MANNER

Background: With the retirement of the Space Shuttle, the US is currently entirely dependent on Russian transportation to get US astronauts to the International Space Station (ISS). The prospect that this situation will change in coming years is offered by three current Public/Private Partnerships (PPPs) between NASA and commercial entities that are applying shared resources to the development of cost-effective transportation systems for carrying humans to Earth orbit. Currently the US pays the Russians nearly $70 million per seat on the Russian Soyuz, while the PPP systems show the potential for much lower cost using US-supplied systems. However, the feasible date for realizing operational flights of the PPP-developed vehicles is directly impacted by the available annual level of US contributions to the development programs even while payments to the Russians for necessary astronaut access to the ISS continues.

Recommendations:

- Congress should provide sufficient government investments to the PPP crew vehicle development programs to enable initial operational flights to Earth orbit no later than 2017 – reducing the available resources below a level that enables maintaining this schedule would be false economy because of the continued cost of using Russian Soyuz vehicles for US astronaut transportation.
- The Administration should formulate and implement well-conceived human-rating/licensing requirements/regulations that assure high safety levels for human access to Earth orbit while fully accommodating design and testing innovation for the new Earth-orbit transportation vehicles
- Congress should facilitate maximum private investment in the development of the new vehicles by sustained protection of the vehicle developers' proprietary intellectual property that is part of private investors' profit incentive.

Issue: RECRUITING, RETAINING, AND DEVELOPING A WORLD-CLASS AEROSPACE WORKFORCE

Background: Without a strong aerospace workforce, the United States will lose the resulting economic and national security benefits the aerospace industry provides to this country. Incentives are needed for industry to invest in domestic aerospace workforce development, and for U.S. students to choose an engineering career. Barriers to employing talented foreign nationals must also be removed.

Recommendations: To remain globally competitive, the U.S. must adopt policies to increase our talent base in science, technology, engineering, and mathematics (STEM), must educate, engage, and retain STEM professionals using means consistent with generational changes in technologies and markets, and must provide incentives for investment in research and development that helps to attract appropriate talent.

- Congress should strongly support NASA's new graduate student research fellowship program, and increase funding for this program over the next several years. Among other purposes, these fellowships are needed to encourage students to pursue careers in key engineering specialty areas important to our country's future in aerospace.
- The Administration and Congress should protect critical aerospace research and development spending in Federal Agencies, to provide the exciting and challenging work that attracts top STEM professionals to the aerospace industry, and to develop the next generation of discoveries that will maintain America's competitive advantages in the aerospace industry.
- Congress should pass legislation to make the R&D tax credit permanent, providing stability to corporate fiscal policies, and thereby extending a critical technology and engineering research environment that attracts the best and brightest into the Technology and Engineering fields.
- The Administration and Congress should pass legislation to create visas set aside for foreign nationals who earn their advanced STEM degrees in the US, thus allowing foreign students who were trained at US universities to remain in and contribute to our national engineering endeavors.
- Congress should approve legislation that facilitates the transition of returning veterans to STEM teaching jobs by providing funds for teacher certification and training programs to qualified veterans.
- The Federal Government should establish micro-prize competitions to both excite the interest of aspiring future STEM professionals and to provide relevant hands-on experience in STEM projects. Similar to the DARPA Grand Challenges program, but on a much smaller scale and open to high school through graduate students, such prizes would be a small investment that could inspire tens of thousands of young people to pursue STEM careers.

Issue: BUILDING OUR COMPETITIVE FOUNDATION: SUPPORTING K-12 STEM EDUCATION

Background: Science, Technology, Engineering, and Mathematics (STEM) education in our nation's classrooms provides the critical foundation needed for our future national security and economic competitiveness. Students need adequate preparation at the primary and secondary education levels if they are to advance to university study of STEM and onto careers in STEM fields. However, inadequate emphasis, funding and teacher training has been provided particularly for the critical technology and engineering (T&E) components of STEM, thus eroding this foundation. If the nation is to fully reap the intended benefits of STEM education, we must remedy our current deficiencies in emphasis, funding, and teacher training in STEM areas.

Recommendations: To remain globally competitive, the U.S. must increase its emphasis, funding, and teacher training in STEM subjects at the primary and secondary education levels. Several policies and actions would make significant progress on this objective.

- The Administration and Congress should provide incentives for States to adopt the new Next Generation Science Standards being developed by a multi-agency working group lead by the National Research Council. Incentives might include curriculum development funds, teacher training funds, or materials funds.
- The Administration and Congress should endorse and fund a program to bring engineering professionals into middle school and junior high school classrooms to engage students in technology- and engineering-oriented activities. Research demonstrates this age group is where STEM performance and interest begins to wane.
- Congress should provide additional funds to specifically support teacher training programs in technology and engineering areas. Hundreds of students each year can be given better engineering- and technology-related learning opportunities by training just one teacher.
- The Federal Government should pursue a research-based evaluation of existing teacher training programs in technology and engineering subjects, to determine which training approaches are most successful and then deploy those approaches nationwide.

ISSUE: ASSURING THE VIABILITY OF THE US AEROSPACE AND DEFENSE INDUSTRIAL BASE

Background: Continued stability of the U.S. aerospace and defense (A&D) industrial base is critical to our economy, national security, infrastructure, and future workforce. The A&D industry is facing one of its greatest challenges in history as Congress and the Administration deal with mounting national debt and the need to balance the federal budget. All federal agencies face significant budget reductions, with the Department of Defense (DoD) potentially bearing the biggest burden. While all areas must be examined to identify unnecessary spending that can be reduced or eliminated to help lower the federal budget deficit and national debt, we must make sure that the nation's future is not mortgaged to address today's crisis.

The aerospace and defense industry supports 3.5 million jobs. It is the nation's largest manufacturing exporter and contributes 2.23 percent of the Gross Domestic Product (GDP). Small businesses generate almost half of private sector jobs, 64%of net new private sector jobs, 43% of high-tech employment and is responsible for 33% of exports.* The industry's workforce is highly skilled and leads our nation in global competitiveness, providing current and future opportunities for young people to have high-paying careers that will keep the industry strong for the future while advancing our national and economic security.

The A&D industrial base possesses unique capabilities and expertise required to address the unique and diverse missions required by both their civil and military customers. However, future U.S. space operational capabilities face industrial base challenges, both from reduced production capability and loss of supporting human expertise. Small business is the backbone of the American economy and technology innovation. The domino effect of reduced federal budgets will undoubtedly force some companies out of business and still others to significantly scale back, resulting in single-source suppliers, or perhaps no domestic supplier for items on the critical development path. If those capabilities are allowed to erode in this lean budget environment, this nation could become technologically bankrupt and unable to address future threats to our national security or economic stability when they arise.

Recommendations: The American Institute of Aeronautics and Astronautics recommends that:

- Congress and the Administration carefully consider the impact of budget cuts on the continued viability of the aerospace and defense industrial base as well as their impact on U.S. national and economic security in their budget reduction deliberations.
- Congress and the Administration must address the impending threat of Sequestration by eliminating the automatic "across-the-board" defense budget reductions which will severely impact research, development, testing, evaluation and acquisitions programs and provide assurances of continuity and sustainability to federal contractors, the small businesses that support these programs, and university and federal laboratories that provide national security RDT&E.
- *AIA Second to None, 9/19/12

Issue: LESSENING THE IMPACT OF EXPORT CONTROLS ON THE DOMESTIC AEROSPACE INDUSTRY

Background: Academics and industry have long struggled with U.S. export-control regimes, which are divided among three agencies: the Department of Commerce licenses export and re-export "dual-use" commercial items (items and technologies those that have civilian and military applications) under the Export Administration Act (EAA) and described in several lists including the Commerce Control/ Critical Commodities List (CCL); the State Department administers technologies and services deemed to be military items under the Arms Export Control Act (AECA), its International Traffic in Arms Regulations (ITAR) and the ITAR's United States Munitions List (USML); and the Department of the Treasury's Office of Foreign Assets Control (OFAC) administers and enforces economic and trade sanctions. The exercise of controls by various agencies, with different agendas, imposes costs. Overlapping jurisdictions creates some confusion as to where specific items fall, even to administrators in the agencies. The problem of multiple forums is made worse by long license processing times. There is significant paperwork and time involved in submitting and processing license applications. In addition, sanctions can apply to specific companies as well as specific countries, and proliferating subsidiaries often make effective administration, and timely compliance, difficult. These factors have the affect of prolonging approval processes and causing delays and lost markets opportunities. The complexity leaves many unsure as to what is covered and how to proceed. Efforts to change the laws have stalled due to anxieties over the theft and use of technologies used in missile, satellite, weapons of mass destruction, and other important systems.

It is widely recognized that the current implementation of export regulations, including those applicable to actual exports as well as knowledge transfers, imposes high costs on firms, universities, and other organizations, often without a perceived commensurate benefit to the national security. Some argue the regulations restrict trade in information and goods tied to technologies that have already been replicated or surpassed by entitites outside of the U.S. that are not subject to the regulations. The result is an ongoing erosion of American competitiveness in the global economy through both a diminished industrial base and stifled innovation. These unintended and avoidable consequences impact the nation's long-term national security capabilities and its current and future prosperity. Potential industry partners overseas avoid collaborations that could become enmeshed in the U.S. regulatory snare. Further, U.S. companies are competing globally with foreign manufacturers that specifically market "ITAR-free" systems and components, and often lose market share needlessly for comparable products.

AIAA applauds the recent language including in the National Defense Authorization Act that removes commercial satellites from the US Munitions List. Recent efforts by the Congress and Administration will help to reduce the negative impacts these restrictions have caused that did not provide the intended offsetting national security gains. However, with this reform, AIAA remains concerned that the intended implementation will be slow, and will not meet the expectations of the Congressional intent. Further, these reforms have been directed to address specific technologies, and do not provide an overarching solution across technology systems and capabilities.

Recommendations: AIAA recommends that the following actions be taken:

- To mitigate adverse effects while preserving intended national security benefits, Congress should overhaul and amend the export control regime. Its strictest provisions should be applied only to the most sensitive technologies which are not already readily available from countries that freely export the resulting capabilities. With such an approach many aerospace subsystems and components could be exempted from ITAR controls, and limitations imposed by the EAR reduced.
- While the ongoing presidentially-directed review may provide some marginal relief from export laws and regulation that hamper international trade and scientific cooperation, Congress should direct that the Administration perform a further review of capabilities, technologies, and production/manufacturing capacities to identify which domestic components and capabilities do not provide a significant national security advantage compared to equivalent available foreign components or capabilities.
- Congress should direct the Departments of State, Commerce, and Treasury to increase staff levels, and fund technical systems, to streamline approval processes to assure improved and speedier processing of license and agreement subject to export control regimens. Consideration should be had to funding ombudsmen activities to support applicant efforts to comply with controls and compete where appropriate in the technology export marketplace.
- Congress should provide increased oversight for implementation of the reforms passed in the FY2013 National Defense Authorization Act, and any future reform measures to ensure that the agencies charged with overseeing our export control regime meet the expectations that Congress has placed upon them through this legislation.

Issue: ACCELERATING THE INTEGRATION OF UAV/UAS INTO THE NATIONAL AIR SPACE (NAS)

Background: While UAV/UAS development and operational costs initially precluded anyone but deep pocketed governments from owning and deploying these systems, lower costs and greater availability have dramatically expanded the potential customer base. Commercially available sensor packages have also greatly expanded the role that these systems can play in every day, non-military, applications across a variety of industries and geographies. With the FAA Modernization and Reform Act of 2012, the groundwork was finally laid for government mandated incorporation of UAV/UAS in the national airspace. As the conflicts in Iraq and Afghanistan wind down, additional "drone" resources will become available that could be utilized in a variety of civilian uses in support of domestic activities. While the military will continue to be primary purchaser of larger and more advanced systems, smaller systems are increasingly finding acceptance in the areas of law enforcement, crop monitoring, disaster response, and will grow in size of their contribution to the global UAV market which is estimated to double from $6.6B annually to $11.4B annually in the next decade. This growth in the market will necessitate available technology that will allow for smooth integration into the NAS. As noted in GAO-12-889T there is no suitable technology "…currently available to provide unmanned aircraft, particularly small UAVs, with the detect, sense, and avoid requirements needed to safely operate within the national airspace system." . With an estimated 62% of worldwide RDT&E on UAVs to be spent by the US and account for 55% of procurement, accelerating the integration into the NAS is a critical step to avoid stagnation and loss of technical superiority in terms of advances in the UAV and UAS arena.

Recommendations: Considering the benefits that UAV/UASs can bring to areas such as disaster relief, imaging, resource monitoring, and law enforcement, efforts should be made to accelerate their integration into the NAS. As spending by US companies on UAV and UAS technology is expected to be the major portion of global UAV spending, adequate support for the industry will be key to being able to remain the global leader in UAV/UAS technology. Keeping in mind concerns over privacy, increased noise and traffic, and overall safety to the public, both on the ground and in the air, the following recommendations are being made:

- The FAA, in partnership with NASA and private industry should immediately accelerate efforts for established requirements and the development of technology to safely and adequately address "sense and avoid" concerns.

- The 2015 date for the development of an integration plan should be accelerated to avoid possible stagnation in the industry due to an inability for the technology to be utilized in the US NAS.
- A more robust and permanent certification process for domestic UAV/UAS use, that avoids the "case by case" review, must be established to support the momentum of increased usage.
- The FAA, along with operators, should establish a "Code of Ethics" and policies regarding the collection, storage, and dissemination of data collected by the operators.
- As required by the 2012 FAA Reauthorization Act, the FAA needs to issue, as soon as possible, the RFP for the six (6) test sites that will study UAV integration into the NAS.
- Teal UAV Study - http://tealgroup.com/index.php/about-teal/teal-group-in-the-media/3/79-teal-group-predicts-worldwide-uav-market-will-total-89-billion-in-its-2012-uav-market-profile-and-forecast

Issue: WHY A ROBUST AND INTEGRATED CYBERSECURITY POLICY IS ONE OF OUR TOP NATIONAL SECURITY PRIORITIES

Background: Now more than ever, a significant portion of peoples, companies, and the USG's day to day activities are integrated into the world wide web. While the adoption of this technology has greatly improved our access and the speed at which we can share and communicate, it has also potentially opened up a "pandora's box" of vulnerabilities. The vulnerability of critical infrastructure and national security assets to Dedicated Denial of Service (DDOS) attacks, the blatant stealing of Intellectual Property (IP) and national security information, and the escalation of cyber to a battlefield of its own make the need for a robust and integrated cybersecurity policy our number one priority. While cyber attacks can take on a variety of forms, most of the attacks involve malicious code, denial of service, stolen or hijacked devices, or "malevolent insiders." A recent assessment by the NSA indicated that there had been a 17-fold increase in computer attacks on American infrastructure between 2009 and 2011. Cyber attacks have a range of targets and impacts from disrupting critical infrastructure, causing financial chaos, decreasing readiness amongst military hardware, or stealing technology and research. The 2011 report from the National Counterintelligence Executive estimated that cyber attacks put nearly $400 billion in research spending at risk between 2009 and 2011.

Beyond network based attacks, counterfeit and malicious hardware is often used as a backdoor for entry into otherwise protected networks. Through August of 2012, there were an average of 107 reports of counterfeit parts each month. A May 2012 report by the Armed Services Committee found that between 2009 and 2010, there were over 1800 cases of counterfeit parts with an individual suspect part count of over 1 million.

While various USG agencies are involved with cybersecurity, a coordinated and centrally located approach is required to avoid redundancy, miscommunication, and to increase the overall effectiveness of being able to act in unison as opposed to agencies battling for limited resources.

Recommendations: Recent DDOS attacks on US banking institutions only highlight the need to address shortcomings in what is the ever changing landscape of cybersecurity. To be able to adequately address and counter the growing global cyber threat, it is critical to resolve long standing shortcomings in existing infrastructure and policy as well as adequately plan for future threats and attacks.

- Congress needs to immediately pass the Cybersecurity Act of 2012. Both houses of congress need to work with opponents to find common ground on which to get the act passed. Until its passage, key parts of the US cybersecurity policy will be held in limbo.
- Past GAO report recommendations that highlight areas at risk in both USG networks and vulnerabilities in the critical infrastructure are still not fully implemented. All major federal agencies should immediately address noted weaknesses in their critical systems.
- Congress should work to consolidate cybersecurity policy and resources around a single USG agency that can best execute the mandate. Competing policy and funding requests will result in fragmented and counter-productive efforts amongst a variety of agencies.

- Congress needs to realize that multiple agencies will be competing for adequately trained and experienced cyber personnel from the same pool, likely resulting in shortages. Congress should work to create STEM minded, but cyber focused, programs that will allow for the right sized workforce to be developed.
- Congress should direct the FAA to verify and provide a report to Congress that the Next Generation Air Traffic Management systems (NextGen) is taking all necessary and conceivable steps to safeguard its system from DDOS and all other types of cyber attacks.
- The Senate should move to finalize its version of HR 3523 Cyber Intelligence Sharing and Protection Act and bring it up for immediate vote and passage as was done in the House.

Issue: ENSURE THE CONTINUING STIMULATION OF ADVANCEMENTS IN THE NATION'S SCIENCE AND TECHNOLOGY PORTFOLIO BY REMOVING RESTRICTIONS ON THE FEDERAL SCIENCE & TECHNOLOGY PROFESSIONAL WORKFORCE TO PARTICIPATE IN TECHNICAL CONFERENCES.

Background: On May 11, 2012 the Office of Management and Budget released OMB Memorandum M-12-12, Promoting Efficient Spending to Support Agency Operations in response to specific and isolated Government Services Administration travel abuses. OMB M-12-12 broadly and severely limits travel for all federal employees to professional conferences without regard to the purpose of the travel, or the content of the program. However, this is in contradiction with the December 17, 2010 Office of Science and Technology Policy memo, Scientific Integrity, which recognizes the importance of participation in professional conferences to advance the state of the nation's science and technology portfolio. OMB M-12-12 reduces overall travel support by 30 percent, requires special permission for more than $100,000 to be spent for agency participation in any conference, reduces the ability to share lessons learned by government scientists and engineers by limiting the number who are able to participate in high value conferences, and requires a new infrastructure be established to decide which few can attend a conference, and–in the case of the $100,000 cap–save little additional money.

Permitting federal employees to participate in technical professional meetings allows interaction with their colleagues from other agencies, our military's directorates, un**Recommendation:**iversities, and industry to help facilitate technology transfer and intellectual exchanges central to their jobs and the national interest. Taken to the extreme, the proposed new policies will have a chilling effect on scientific discovery and engineering advancement, thereby damaging our nation's unique innovation engine, which is a major contributor to job creation, economic growth, our global competitiveness, and our national security.

Unlike many professions, the nature of work for an acquisition expert, program manager, scientist, engineer, and/or technology professional requires a sharing of research findings and collaboration on policy issues with peers and colleagues at conferences and meetings. This peer collaboration process, fundamental to scientific advances and engineering development, is unlikely to be achieved without this interaction. The benefits of collaboration and idea exchange have been extensively recognized in national security, space exploration, climate monitoring, aeronautics development, energy, health sciences, and other fields of endeavor from which the nation has benefited over many years.

In addition, the open exchange of ideas between national policymakers and thought leaders from industry and academia helps to create policies and programs that maximize the impact of investments in research, development, testing, and evaluation, and to ensure that those investments support national goals of economic growth and national security.

Recommendation: To meet the charter and mission requirements of science & research agencies and offices, Congress must provide exemptions from legislative and Administration restrictions on travel for professionals within the Federal workforce desiring to participate in technical conferences where attendance promotes the interest of the agency and the professional development and competency of government professionals. This exemption should allow for participation in exchange and dissemination of results and developments which accelerate discoveries and techniques throughout the technical community allowing for the advancement of the nation's science and technology capabilities and providing professional development opportunities for its workforce.