Potomac Institute for Policy Studies

2019 Annual Report

Contents

cover image: Potomac Institute

The exponential rate of change in science and technology in the 21st century brings both enormous prospects and complex challenges for both individual citizens, and for those with responsibility to evaluate how these changes might impact society as a whole.

— National Academy of Public Administration, "Science and Technology Policy Assessment: A Congressionally Directed Review"

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Potomac Institute: Building the Future

The Potomac Institute for Policy Studies continues to develop meaningful policy and support its implementation at the intersection of business and government. We are working hard to build a strong future as the Institute serves the nation on critical S&T Policy issues.

The Institute's driving philosophy is that policy should be based on science and evidence, and that government investment in S&T is critical to the nation. Policy impact is our goal and mission. We are working together with key leaders to shape policy and strategy in space, defense research, innovation, supply chain security, microelectronics, and health.

Potomac Institute's role is unique in Washington DC. We are a facilitator and we seed new ideas. We have deep technical expertise, but we can imagine technology beyond what is possible today. We have deep experience, but we are not willing to accept the status quo. We have comprehensive strategic and tactical expertise, and we work with customers on everything from technical program details to the big picture. We speak the language of venture capital investors, policy makers, technical experts, military operators, and futurists.

The U.S. government, and especially the Defense Department and Intelligence Community, need to imagine the future and understand emerging technologies in order to remain competitive and dominant. Government and industry must work together to solve the problems of this century; neither can meet these challenges alone. We need someone who knows the strengths of both to bring them together, and who can inspire them to innovate. That's Potomac Institute. Together we are building the future.

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Mike Swetnam
CEO and Chairman of the Board

Michael Swetnam assisted in founding the Potomac Institute for Policy Studies in 1994. Since its inception, he has served as Chairman of the Board and currently serves as the Institute's Chief Executive Officer. He has authored and edited several books and articles including: "Al-Qa'ida: Ten Years After 9/11 and Beyond," co-authored with Yonah Alexander; "Cyber Terrorism and Information Warfare," a four volume set he co-edited; "Usama bin Laden's al-Qaida: Profile of a Terrorist Network," co-authored with Yonah Alexander; "ETA: Profile of a Terrorist Group," co-authored with Yonah Alexander and Herbert M. Levine; and "Best Available Science: Its Evolution, Taxonomy, and Application," co-authored with Dennis K. McBride, A. Alan Moghissi, Betty R. Love and Sorin R. Straja.

Mr. Swetnam is currently a member of the Technical Advisory Group to the United States Senate Select Committee on Intelligence. In this capacity, he provides expert advice to the U.S. Senate on the R&D investment strategy of the U.S. Intelligence Community. He also served on the Defense Science Board (DSB) Task Force on Counterterrorism and the Task Force on Intelligence Support to the War on Terrorism.

From 1990 to 1992, Mr. Swetnam served as a Special Consultant to President Bush's Foreign Intelligence Advisory Board (PFIAB) where he provided expert advice on Intelligence Community issues including budget, community architecture, and major programs. He also assisted in authoring the Board's assessment of Intelligence Community support to Desert Storm/Shield.

Prior to forming the Potomac Institute for Policy Studies, Mr. Swetnam worked in private industry as a Vice President of Engineering at the Pacific-Sierra Research Corporation, Director of Information Processing Systems at GTE, and Manager of Strategic Planning for GTE Government Systems.

Mr. Swetnam served in the U.S. Navy for 24 years as an active duty and reserve officer, Special Duty Cryptology.

General Al Gray
Chairman, Board of Regents

General Al Gray serves as the Chairman of the Potomac Institute's Board of Regents and is a member of the Board of Directors. He served as the 29th Commandant of the Marine Corps, on the Joint Chiefs of Staff, and as an advisor to Presidents Ronald Reagan and George H.W. Bush. He holds many distinguished leadership and Board positions in numerous government, industry, university, and non-profit organizations. His military service and leadership are legendary and he is highly respected in the military and intelligence community. He has been recognized with many awards and honors, including induction to the NSA's Cryptologic Hall of Honor in recognition of his service to the nation. General Gray continues to serve the Institute in numerous ways, from his connection to the Marine Corps via CETO, senior government leaders, and the Research and Development community; to his numerous public speaking appearances; to his thought leadership on a wide range of strategic and technical issues. He is dedicated to charity and public service work with numerous nonprofit organizations serving youth, Marines, and injured service members.
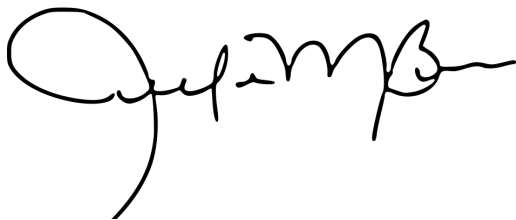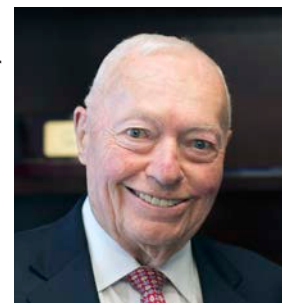
Message From the President

For a long time, 2020 was the "far future" – dozens of studies and science fiction stories used it as a marker. We published a few reports of our own predicting all the great advances in technology we would see by 2020. Some of our predictions were wildly optimistic, but many have come true. Over two decades ago, we predicted that missions to Mars and commercial activity on the International Space Station would be reality by now; today, both are happening. Genetic engineering is a common tool. Our understanding of the brain has grown by leaps and bounds. Advanced modeling and simulation are common tools for science and training, and powerful mobile devices are ubiquitous, Exponential increases in computing performance has enabled significant developments and innovations.

What will the next 20 or 30 years bring? We will send warfighters to space. We will fight wars alongside and against autonomous robotic systems. We will use AI to help us do everything from predicting health to planning wars. We will harness the power of biology to learn about and shape the world around us. We will see information become even more valuable and weaponized. We will engineer our own bodies, minds, and environment.

Thank you to all those who have been part of our conversations about what the future might hold. You have inspired us, and we hope we have inspired you. We draw strength from your imagination and ideas. Thank you to our customers for supporting our work and for your service to the nation. Thank you to our staff for a great year of making these ideas a reality. Thank you to the Board of Directors, Board of Regents, and Senior Fellows of the Potomac Institute for Policy Studies for their continuing work on our behalf. Your input, counsel, and support help sustain our organization.

Jennifer Buss, Ph.D.
President
Jennifer Buss, Ph.D. serves as the President of Potomac Institute, and exemplifies the organization's core mission and capabilities. She blends technical expertise with innovative ideas and an expanding drive to make them reality. In 2019 Dr. Buss has led the Institute to expand its portfolio on space issues, added key new staff and Fellows, and she renewed its internal research focus on AI, neuro, and bio futures.

History

The Potomac Institute was founded as a not-for-profit 501(c)3 in 1994 to provide technical policy expertise to the government. The founders intended to carry on the legacy of the Office of Technology Assessment in providing a source of objective S&T policy advice to Congress.

Our first funding was provided via the National Science Foundation to support a supercomputing center. Some of our early academic work was on terrorism. In the late 1990s we hosted one of the few academic centers whollly dedicated to studying terrorism, and after 9/11 our book on Osama bin Laden and Al Qaeda was widely read by the intelligence community. We have always had close ties to the military, and our early work with the Marine Corps lives on today at CETO, a futures group and think tank at Quantico.

Over time the Institute has served a broad set of customers on a diverse range of technical and policy issues. Throughout our history, we have served government customers including Congress, Department of Defense agencies (Office of the Secretary of Defense, DARPA, the Armed Services and their Labs, research agencies, training commands and operational commands), the National Aeronautics and Space Administration, the Department of Energy, many national labs, the Department of Homeland Security, the Intelligence Community, law enforcement, the Federal Aviation Administration, the Census Bureau, the National Science Foundation, National Institutes of Health, the Department of Health and Human Services, and more. We are proud to count many former service members among our Board, staff, and fellows, as well as many former senior government officials. The common theme across all these efforts has been the Institute's ability to convene policy leaders and technical experts to innovate and work together in the national interest.

Mission

The Potomac Institute for Policy Studies is an independent, nonpartisan, not-for-profit, science and technology (S&T) policy research institute. The Institute identifies and leads discussions on key S&T and national security issues facing our society, providing an academic forum for the study of related policy issues. Based on data and evidence, we develop meaningful policy recommendations and ensure their implementation at the intersection of business and government. The Potomac Institute provides high-level, S&T policy support to the federal government.

Core Capabilities

Strategic Planning:

- Analyze and develop mission, goals and strategic plan
- Provide agency or office director-level technical and policy strategy
- Define plans, formulate realistic policy expertise, and assist with policy and program development and implementation
- Build stakeholder buy-in with internal and external parties

Research & Development:

- Provide strategies and implementation plans for research to government customers based on mission, goals and identified capability gaps
- Build research agendas, including policy development and implementation
- Utilize technical research on commercial and government trends to provide a comprehensive context by utilizing

Trends & Impacts:

- Analyze and forecast S&T trends
- Describe the impacts of S&T on policy and society
- Leverage technical and government experience to gain unique insights
- Expand strategic and futures thinking to go far beyond what other forecasters' imagination

Bold Ideas:

- Identify bold solutions to hard policy and technical challenges
- Innovative research efforts are identified and assessed
- Serve as independent innovation engines via CReST and other academic centers
- Discussions and ideas translate into realistic policy solutions

Building Networks:

- Utilize one of the Potomac Institute's core strengths—the wide network and reachback capability of the Senior Fellows and Board of Regents
- World-class expertise from policy, government, military, and technical areas
- Utilize this network for review groups, gathering new ideas, policy development, program and technical assessments, independent analysis, and stakeholder input

Market Trends:

- Document and analyze commercial technology capabilities for the use of government agencies to make strategic decisions
- Research and assess applicability, company viability, and technical capability
- Provide a full report of recommendations for investment and policy based on government needs

Current Efforts

The Potomac Institute works directly with the government to generate strategic advice on S&T issues, formulate policy options, and implement them. We provide innovative, research-based technology forecasting insights to the defense and intelligence communities.

The Institute provides strategic planning, budget analysis, and technology forecasting in support of areas as varied as innovation in defense acquisition, warfighting activities and capabilities, military training and education concepts, and microelectronics and supply chain security, health; human performance in space, future space development, and much more.

Our recent customers include the U.S. Marine Corps, Navy, Army, Air Force, DARPA, OSD, Defense Microelectronics Activity, Defense Health Agency, NASA, Department of Energy/NNSA, the Intelligence Community, among others.

Our work has also contributed to raising and solving large policy questions on issues like national security, space security, supply chain security, critical infrastructure, and biomedical sciences. Our staff include highly technical experts at the top of their field, senior government leaders, and a talented analytic research staff.

NSWC Indian Head

The Potomac Institute has become an integral part of the team at Naval Surface Warfare Center Indian Head, Explosive Ordinance Disposal (EOD) Technology Division. The Institute works with the Technical Director to develop and implement strategic plans for a technical and management revitalization that have been highly successful. The Institute has worked with leadership to develop strategic plans, technical tools, wargaming, tech forecasting, and process improvements in project management, quality execution, systems engineering, and safety. The Institute has provided support to the Navy's Energetics Renaissance effort, which has been highlighted in *National Defense Magazine*, National Defense Industrial Association (NDIA) forums, and Federal News Network. This year, the Potomac Institute team initiated a new program for select staff at Indian Head to foster innovation, leadership and strategic thinking, called the Leadership College of Indian Head University.

Training & Education

The Potomac Institute has provided extensive support to DOD and Services training and education programs over the last two decades. Our earliest work included human performance and modeling and simulation, and current efforts include designing and implementing Live, Virtual, Constructive Training Environments (LVC-TE) programs and concepts of operations (CONOPS), and Future Learning Group programs to provide continued learning to servicemembers.

Defense Health Agency

Potomac Institute supports the Defense Health Agency (DHA) R&D Directorate (J-9) through a research and development planning project, including strategy development, S&T transition planning, and tailored acquisition approaches. This effort draws on the Institute's experience in R&D strategic planning across a wide range of S&T areas, and on the Institute team's technical expertise in program development and operations research.

Air Force

The Air Force acquisition establishment, under the leadership of Assistant Secretary, Dr. Will Roper and Elen Cooley, has taken major steps to revolutionize how it does business. Roper and AFRL have held "pitch days" modeled on Shark Tank, and have tried to replicate how venture capital investors move "at the speed of business." The Potomac Institute is working with the Air Force acquisition office to define and recommend research transition strategies for the rapid transition of discoveries from laboratory to use in the field. Key issues being addressed include establishing transition metrics; assessing return on investment for IR&D/basic research; reviewing and aligning research portfolios; streamlining business processes; and developing policy to support these efforts. This effort has relied on General Janet Wolfenbarger (USAF, Ret.) and General Al Gray (USMC, Ret.) as well as many of the Institute's senior fellows with leadership experience in the Air Force and Acquisition communities.

Microelectronics
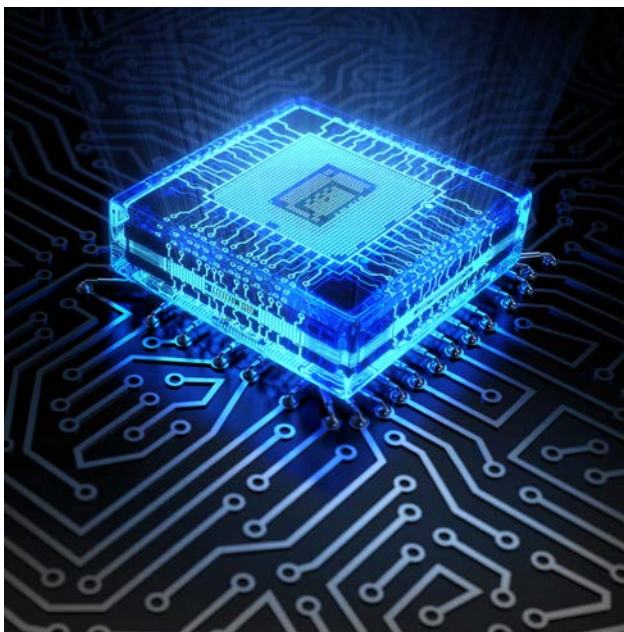
The Institute's work on microelectronics ranges from providing strategic policy analysis and recommendations to technical assessments and conference participation. We support several of the government agencies that are conducting major research and development efforts on microelectronics. For the last several years, the Institute has worked with several groups in the Office the Secretary of Defense and DARPA on such efforts. Programs have included the OSD "Microelectronics Innovation for the National Security and Economic Competitiveness (MINSEC)" and the DARPA "Electronics Resurgence Initiative" efforts. For OSD, we provided advice on MINSEC strategy as well as executing a study on a novel USG microelectronics design focused accelerator/incubator called "STRIVE." For DARPA we worked a technology proliferation study to look into technology transition results of some representative DARPA MTO Programs. The Institute also provided Strategic and Technical Planning and Analysis for the Defense Microelectronics Activity, including analysis of commercial and government foundry capabilities and trends. These efforts are all examples of the Institute's role at the intersection of business and government, unique ability to analyze and understand the needs of each stakeholder, and work to develop policy that fosters innovation while meeting national security needs.

Commercial Industry Innovation

The Potomac Institute staff continues to provide strategic support to the United States Government (USG) on commercial industry innovation. The PIPS staff is working with industry leaders in key technical areas to support USG critical mission objectives. This is part of a broader effort to ensure that the U.S. National Security community is utilizing state-of-the-art commercial innovation to maintain decisive advantages in every warfighting domain. These efforts include assessments of key challenge areas, analysis of capabilities and use case scenarios. The Institute helps the USG monitor technology development in specific commercial areas and engage with venture capital firms to support USG mission goals.

NASA

The Potomac Institute has been steadily growing its support to NASA headquarters with efforts in the human aspects of spaceflight and policy analysis and recommendations. The Institute worked closely with NASA to address the risk of space radiation to our astronauts. Two studies in two years resulted in the conclusion that the risk of getting cancer does not equate to mortality. Additionally, the Institute concluded a major effort to assess policy and implementation plans for the TREAT Act, long-awaited legislation that authorized NASA to provide healthcare to retired astronauts just like members of the military and civil servants. The Institute continues to provide forecasting and trends analysis and technical and policy support to NASA's Human Research Program, including utilizing genetic information for mission readiness, the future of precision medicine, and the applications of emerging technologies for spaceflight and their policy implications.

DHS

The Potomac Institute has partnered with DHS many times in the past, and this year has renewed its relationship with DHS through the S&T's Office of International Partnerships. This group is responsible for negotiating international agreements on research agendas and S&T development. The Institute has several key personnel with deep expertise in this area and builds on past work with ONR global and other similar offices. The Institute is pleased to have established a contract vehicle with DHS S&T and is working to develop additional future efforts.

image: Shutterstock

CETO

The Center for Emerging Threats and Opportunities (CETO) is an internal think tank serving the Marine Corps the Potomac Institute has run since its inception in 2000 via Congressional mandate. Located on Marine Corps Base Quantico, CETO plays a unique role in developing new ideas and concepts in direct support of the Commanding General Marine Corps Warfighting Laboratory (CG MCWL)/Director of the Marine Corps' Futures Directorate. CETO's support covers the full spectrum of combat development-related missions and tasks, including the assessment of future threats and adversaries and associated geographic, environmental, economic, and demographic conditions that may influence the development of future warfighting concepts, experimentation, and capabilities. Their numerous products are widely read and include futures trends, threat assessments, and capabilities analysis for the Marine Corps. CETO also publishes numerous studies, reports, and quick-look assessments; participates in wargames; and provides expertise in conferences and forums across the Corps and broader security community. CETO's highly specialized staff is uniquely qualified to serve the Marine Corps in this capacity, representing all specialties, extensive combat experience, and high levels of education.

CETO Staff:

- Average 35 years total experience
- Average 29 years of active duty military experience with Navy or USMC
- Experience as Commanding Officers of company, battalion, regiment, installation, MEUs, and at MCWL and Training Command
- Previously held staff positions at HQ USMC, Joint Staff, CENTCOM, EUCOM, NATO, and many more
- All hold one or more Masters degrees and numerous certifications
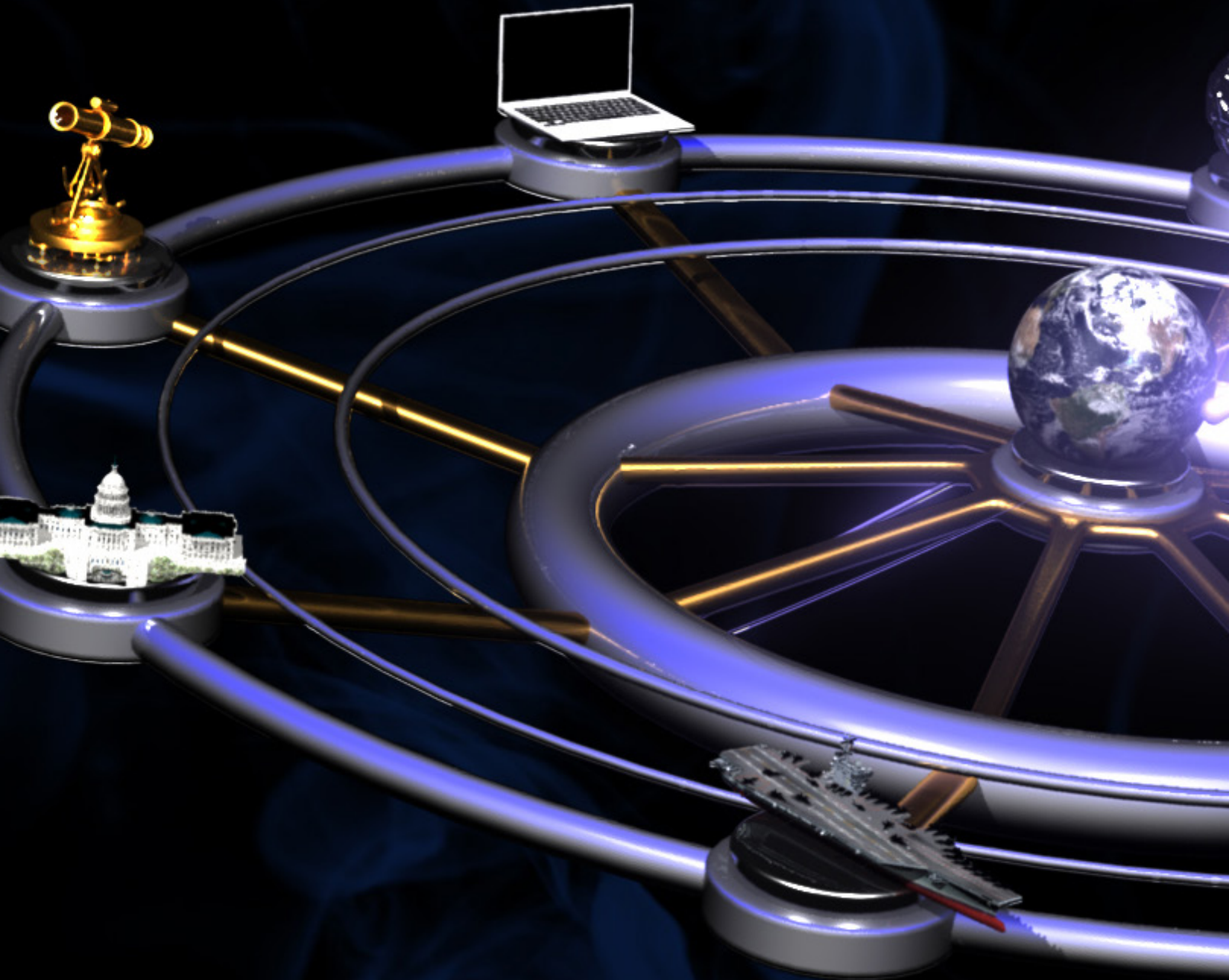
Academic Centers
Incubating Bold Ideas

As part of Potomac Institute's public service mission, we are proud to be home to several academic centers which provide thought leadership across our core areas of expertise. The Institute is a not-for-profit 501(c)3 research organization, so all profits are dedicated to this mission. Our academic centers convene experts, host public events, perform independent research, publish reports and white papers, and provide expertise to the government and other organizations, often on a pro bono basis. These Centers provide thought leadership and assemble experts, serving a critical role for the exchange of ideas at the intersection of business, government, and academia.

The Potomac Institute hosts dozens of events and forums every year, and publishes reports on their findings that make the technical and policy aspects accessible for both specialists and generalists. To stay in the loop on future events and publications, subscribe to our mailing list at www.potomacinstitute.org.

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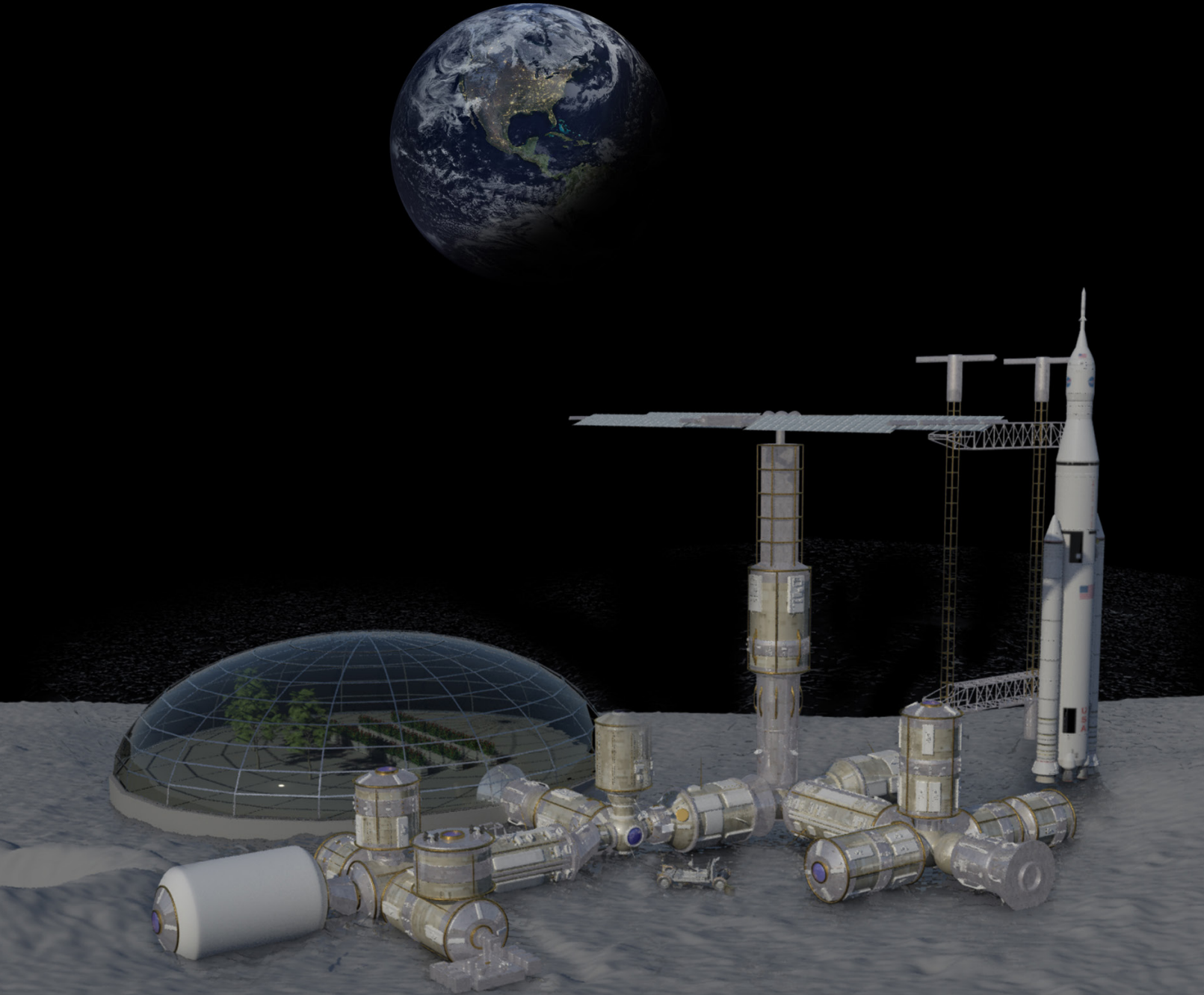
CEEDS

The Center for Enterprise, Exploration, and Defense in Space (CEEDS) identifies, assesses, and makes recommendations on policy issues related to government's fundamental role in space. CEEDS brings together experts from across relevant government organizations and private industry to discuss what is being done today – and what more can be done tomorrow – to explore the cosmos.

CEEDS has been an active voice in shaping space policy this year, holding several forums with key leaders from government and industry, and providing input to ongoing government policy discussions from Capitol Hill to the Pentagon. Earlier this year CEEDS published an opinion piece calling for development of a comprehensive space strategy, to guide investment and security activities, and to ensure U.S. leadership in commercial enterprise, defense, and intelligence in space.

CEEDS is an example of the critical need for a bridge between commercial and government activities. While NASA and the defense and intelligence communities have long dominated space activities, the balance is shifting toward industry. Global commercial space revenues in 2018 reached $328.9B, a seven percent increase over 2017, and government now relies on commercial satellite and launch providers. The National Space Council, Space Force, and numerous Federal agencies are actively making space policy and S&T investments. CEEDS brings PIPS' well-known objectivity to bear on the space domain and provides senior decision makers a better understanding of the complex policy options in this increasingly important sector.

CEEDS is also proud to have some of the leading thinkers on space capabilities in our orbit, including former NASA Administrator and astronaut Maj. Gen. Charles Frank Bolden Jr., (USMC-Ret.), former NOAA Director and astronaut Dr. Kathryn Sullivan, former DARPA TTO Director and inaugural Space Defense Agency Director Dr. Fred Kennedy, aerospace R&D expert Dr. Jerry Krassner, Doug Wolfe, Brian Morra, General Janet Wolfenbarger, as well as the many other defense and intelligence space experts in the Potomac Institute community.

CEEDS has held two major events on the future of spaceflight and exploration this year. Held on the Hill, these educational and future-oriented discussions help bring technical and policy expertise from both industry and government to the policymakers and staff who need to understand this important emerging field. Reports and full event video are available on the Potomac Institute's CEEDS website.

"Next Steps in Low Earth Orbit Commercialization"

On June 21, 2019, CEEDS held a seminar titled: "The Next Space Industry: Low Earth Orbit Commercialization" to examine and discuss issues related to low Earth orbit (LEO) commercialization.

## The Future of Deep Space Exploration

The Potomac Institute for Policy Studies hosts a panel discussion on the exciting work being done in the exploration of deep space. CEEDS has called together a group of experts from across relevant government organizations and private industry to discuss what is being done today – and what more can be done tomorrow – to explore the cosmos.

For decades, the U.S. has led the charge with a number of firsts in space exploration. American astronauts were the first to land on the moon. NASA's Pioneer, Galileo, Voyager, NEAR, and Cassini-Huygens missions continued to forge ahead: first to fly by Saturn, Uranus, and Neptune; first to orbit Jupiter and Saturn; first to land on an asteroid; and first to land on Titan. These are but a few of the achievements of American deep space exploration over the last five decades. So what efforts are continuing today, and what does the future look like?
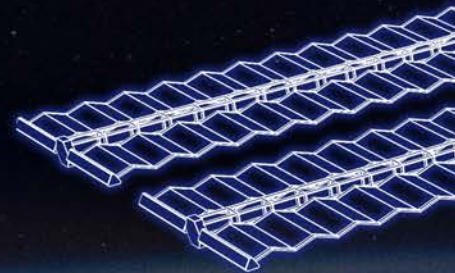
"Our missions demand decades, even generational planning. But beyond technical milestones, the legacy we must pass on is inspiration."

– Former NASA Administrator MajGen Charles F. Bolden Jr., USMC, (Ret.)

image: Potomac Institute
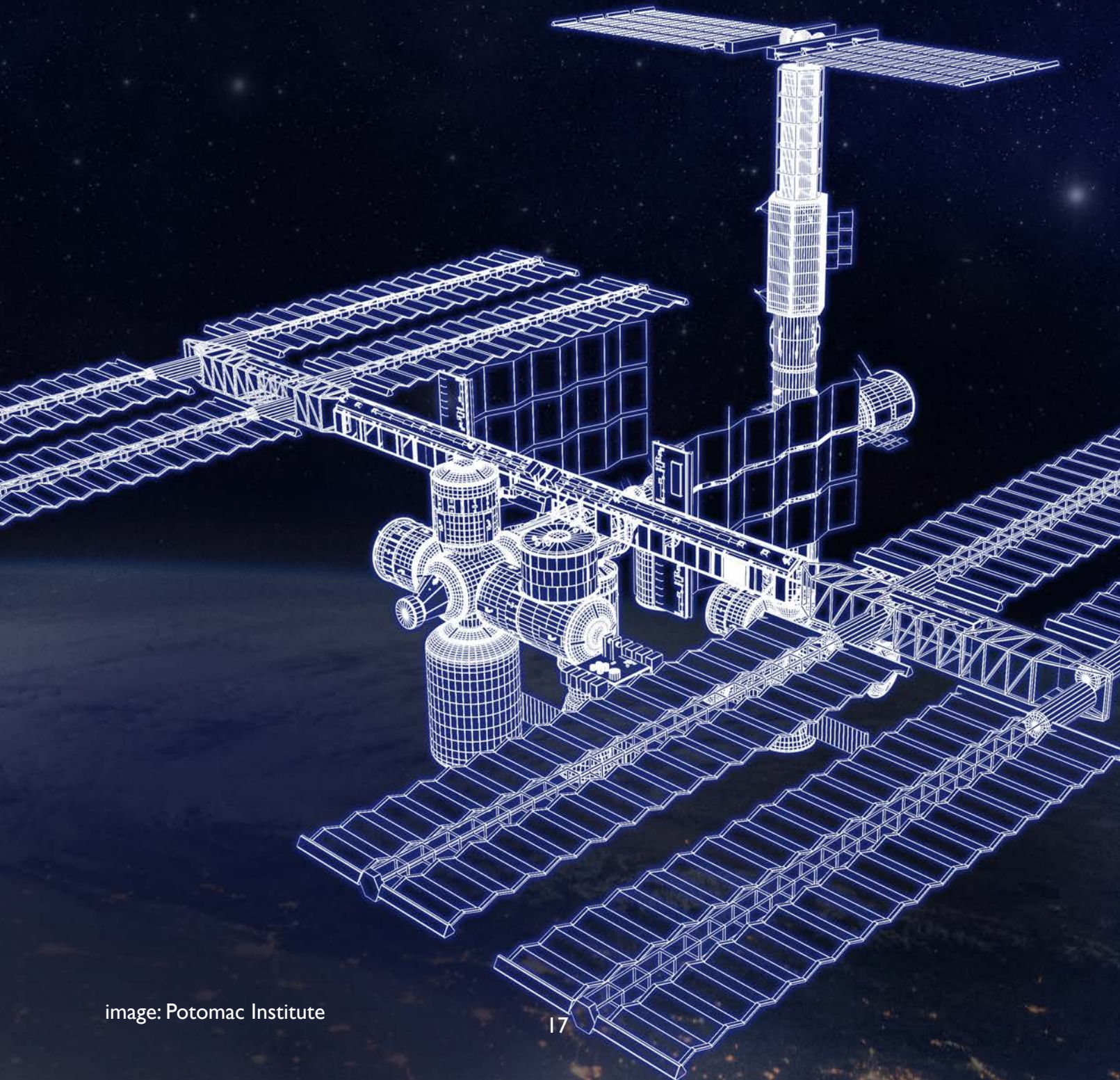
VITAL

The Vital Infrastructure, Technology, and Logistics (VITAL) Center was founded at Potomac Institute with the mission to apply the Institute's expertise in supply chain security and national security to emerging areas of concern, including critical infrastructure, commercial and industrial base, and defense industry supply chains. VITAL works in partnership with the international law firm Venable, LLP to bring together policymakers and industry representatives to address policy issues, particularly of national security and critical infrastructure issues surrounding 5G. This year VITAL hosted numerous public forums on technical and policy issues, convening experts from industry, government, and academia to share knowledge and foster policy dialogue.

Complexity Science

What do food prices in the Arab Spring, Ebola response in West Africa, and the Fed's response to the U.S. financial crisis have in common? They can all be modeled using the advanced techniques of the field and capabilities of complexity science. The Potomac Institute hosted a technical and policy talk to provide an introduction to presentation by Dr. Yaneer Bar-Yam, President, New England Complex Systems Institute (NECSI). He outlined both the complex mathematics and data analytics that go into building these models, and the strategic insights they can yield for decision makers.

Blockchain and DOD

Blockchain is a simple but potentially revolutionary technology that could change how DOD, and the industry that builds defense systems, tracks the parts that go into everything from weapons and jets to network equipment. Supply chains for these parts are incredibly complex and hard to track, and leading to potentially significant vulnerabilities in these critical systems. The Potomac Institute's VITAL Center hosted a talk from Nikhil Shenoy, an expert in applications of blockchain for government systems, who shared the current state-of-the-art and provided examples of how government is using this technology for national security.

Future of Computing

This fall, the Potomac Institute's CReST and VITAL centers held an event convening some of the leading thinkers on the future of computing technologies. In 1965, Gordon Moore wrote the seminal paper that laid out a roadmap for future of computing that would hold for over 50 years. Today, we are reaching the end of gains achieved from Moore's Law, and innovative companies and researchers are looking forward to new ways to imagine the future of computing. Current areas of research include quantum, computing with thermodynamics, 3-D stacking, novel materials, neural networks and other bio-inspired architectures, and even living bio-computers. The USG drove much of the early work in advanced computing, and continues to play an important role in funding this research, but how can it best focus its resources and efforts? The panelists emphasized that the future roadmap for computing is not yet set, and there are many promising avenues for research. The USG must play a significant role in driving this research if we are to maintain our global leadership in this field.

CReST

The Center for Revolutionary Scientific Thought (CReST) was founded in 2012 to serve as the Institute's "think tank within the think tank" – to develop new bold ideas in S&T policy. It has convened numerous events, from large public seminars to small discussion groups with thought leaders from government, industry, academia, and other fields.

CReST's technical mission is to keep the Institute well-informed on the cutting edge of new technologies and scientific research, and to assess the impact of emerging trends. Over the last several years this work has encompassed biotechnology, genetics, ambient energy harvesting, neurotechnology, big data and privacy, artificial intelligence, and much more. This year CReST has built upon these efforts in a major survey of ongoing research in machine intelligence and and policy implications of neuroscience. CReST serves as the Institute's internal policy group, holding discussions on topics in emerging technology and their policy implications. Topics this year have included data privacy and governance in the digital age, ubiquitous surveillance, the future form of government; and the social, privacy, and policy implications of genetic sequencing and engineering technologies.

CReST also serves as a training program, providing a unique curriculum in strategic thinking, tech forecasting, and public policy based on readings and lectures in S&T trends, science fiction, history, and policy. It has trained over thirty fellows, early-career PhD scientists who have gone on to careers in S&T policy. CReST's vision is to build a cadre of future S&T leaders have the skills to make and influence policy at the highest levels. This year CReST has continued on this mission. The group has an ongoing reading list with selections related to S&T futures and their implications for society.

Machine Intelligence and Neuroscience Study

CReST is currently working on a long-term study on current and future research directions in the fields of machine intelligence and neuroscience. CReST staff are conducting university visits and discussions with leading researchers in related fields on implications of the researchers' work, where the field is headed (10, 20, 50+ years into the future), the field's ultimate goals, technical challenges towards reaching those goals, the USG's role in advancing the field, and other high-level policy-related questions. Some technical topics discussed have included: extended reality (XR); artificial intelligence applications; enhanced sensor technology; ubiquitous surveillance; and Deepfakes and disinformation. CReST staff have held discussions with researchers from University of Maryland, Georgetown University, Catholic University, George Mason University, and Johns Hopkins University. CReST will continue this project through the upcoming year and issue periodic reports and analysis. For more information, contact Dr. Kate Ziden, kziden@potomacinstitute.org.

"Resilient, connected societies must drive modernization with security at its core."

– Melissa Hathaway, Cyber Readiness Index 2.0

image: Shutterstock

CRI

The Cyber Readiness Index 2.0 (CRI 2.0), one of PIPS' leading research projects, is a ground-breaking methodology to evaluate and measure a country's national-level preparedness for cyber risks. The CRI 2.0 offers a comprehensive, comparative, experience-based methodology to help national leaders chart a path toward a safer, more resilient digital future. The CRI 2.0 uses over seventy unique indicators across seven essential elements to discern operationally ready activities and identify areas for improvement in the following categories: national strategy, incident response, e-crime and law enforcement, information sharing, investment in research and development, diplomacy and trade, and defense and crisis response. This unique methodology is the only one publicly available in all six United Nations languages.

The CRI 2.0 has had substantive policy impacts on major international institutions and is viewed by countries, international organizations, think tanks, and researchers as a balanced resource to evaluate and measure cyber preparedness at the national, regional, and local levels. The CRI team has published major reports and in-depth country assessments, which detail the current cybersecurity posture of various countries around the world and their efforts to strengthen their security and resilience in the face of emerging ICT threats. Most recently, the CRI 2.0 methodology was applied to the countries of Slovakia, South Africa, and Singapore. All published reports are freely available on the Potomac Institute's CRI website <https://potomacinstitute.org/academic-centers/cyber-readiness-index>. The authors continue to present their work in numerous international fora and work with government officials to develop cybersecurity capacity around the world. Melissa Hathaway has also published several journal articles and academic papers based on the CRI 2.0, including an in-depth analysis of Internet-infrastructure dependencies, critical digital vulnerabilities, the responsibility of commercial technology companies, and related economic and policy issues.

English   French   Spanish   Chinese   Arabic   Russian

Melissa Hathaway is the CRI leading author and an internationally-recognized expert in cyberspace policy and cybersecurity. She served in two US presidential administrations, leading the Comprehensive National Cybersecurity Initiative for President George W. Bush and spearheading the Cyberspace Policy Review for President Barack Obama.

"Each [software] vulnerability is only a keystroke away from being exploited with weapons and services that are easily accessible and affordable online."

– Melissa Hathaway, "Patching Our Digital Future is Unsustainable and Dangerous"

image: Shutterstock

ICTS

The International Center for Terrorism Studies is Potomac Institute's long-standing center for academic study of terrorism, and is led by the world-renowned expert Professor Yonah Alexander. ICTS convenes expert panels of academics and ambassadors, and cooperates with universities, governments and nonprofits around the world. ICTS publishes numerous reports documenting their work and events, including specific topics such as bioterrorism, weapons of mass destruction, international cooperation, legal frameworks, and country and regional analyses.

Some of the many events and publications this year included "Biological Terrorism: International Dimensions" and "The Role of Diplomacy in World Affairs: Past Lessons and Future Outlook." Professor Alexander contributed to reports on terrorism issues published by the United Nations, NATO, and the Organization for Security and Cooperation in Europe. He continues to travel and lecture internationally, including speaking at an international conference on "Moroccan – U.S. Relations" at the Royal Institute for Strategic Studies in Rabat, and at an international conference and table-top exercise in Poland sponsored by NATO, the U.S. State Department, DoD, the Marshall Center, the Partnership for Peace Consortium of Defense Academies, Security Study Institutes, and Polish Naval Academy. ICTS hosts an internship program that has trained hundreds of young scholars in the study of terrorism, who have gone on to successful careers in government, industry and academia.

INTERNATIONAL CENTER

FOR

TERRORISM

STUDIES

CAI

The Potomac Institute for Policy Studies' Center for Adaptation and Innovation (CAI) identifies and defines new and potentially disruptive defense capabilities. CAI assists senior defense leaders grappling with the most demanding issues and problems posed by a complex and uncertain security environment. CAI convenes thought leaders from across the national security community on specific topics of interest to senior military leaders and provides thoughtful analysis on issues of the day. CAI operates under the mentorship and guidance of General Al Gray.

CAI regularly hosts Navy and Marine Corps Commanders returning from deployments who share the highlights of their deployment. These briefings and forums connect policymakers with operational reports from the field. Returning Commander Series events held this year included briefings from:

- Special Purpose Marine Air Ground Task Force SOUTHCOM (SPMAGTF-SC), returning from deployment in Central America
- Special Purpose Marine Air Ground Task Force — Crisis Response — Central Command (SPMAGTF-CR-CC) 18.2, returning from deployment in the Middle East
- 3th Marine Expeditionary Unit (MEU), based out of Camp Pendleton, California, returning from Pacific theater deployment
- 31st Marine Expeditionary Unit (MEU), based out of Okinawa Japan, supporting 7th Fleet and PACOM
- Special Purpose Marine Air Ground Task Force Crisis Response Africa 19.1 (SPMAGTF-CR-AF 19.1), based out of Morón Air Base in Spain, supporting AFRICOM and regional partners.

CENTER FOR
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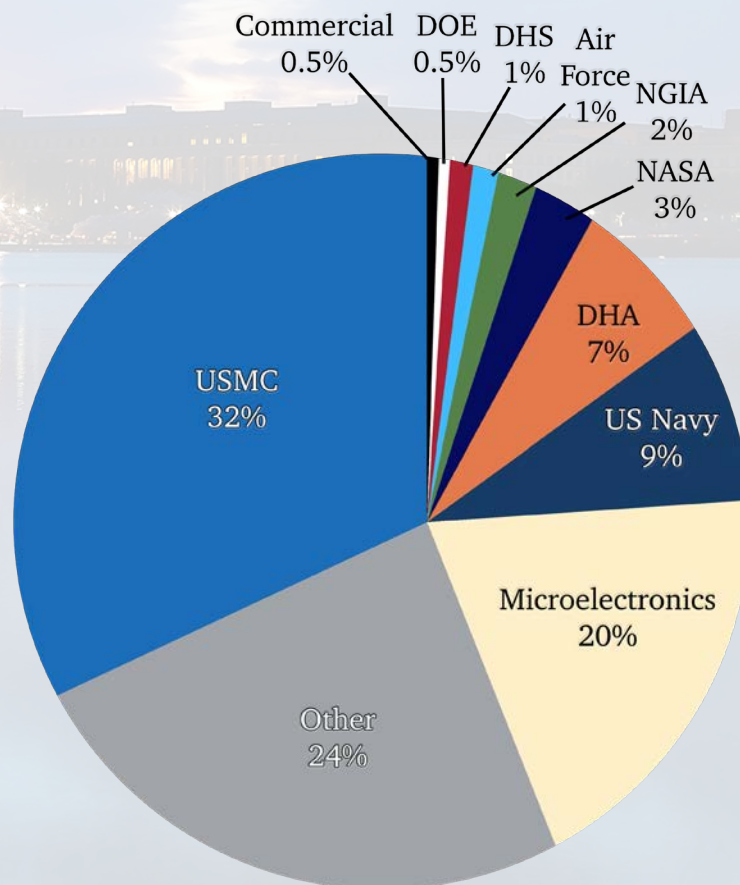
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Finances

The Potomac Institute is a unique organization that merges elements of a think tank, consulting organization, federally-funded R&D center, and university. We strongly value our position as an independent, non-partisan, trusted source of expertise on science, technology, and national security issues.

Our funding is almost entirely from government contracts. The majority of our funding comes from the Department of Defense via the services or agencies focused on S&T. This funding model gives us a unique role as a trusted advisor to policymakers, and provides an up-close window into the real world of policy issues. Historically, the Institute has not relied on foundation or individual giving, because we value our independence from ideological or special interests. As a not-for-profit, our public service mission is to contribute an independent and academically rigorous voice to the policy dialogue.

The Potomac Institute's revenue (as a percentage of total) by source for CY 2019, from estimated revenue based on unaudited financial statements.

Commercial 0.5%, DOE 0.5%, DHS 1%, Air Force 1%, NGIA 2%, NASA 3%, DHA 7%, US Navy 9%, Microelectronics 20%, Other 24%, USMC 32%
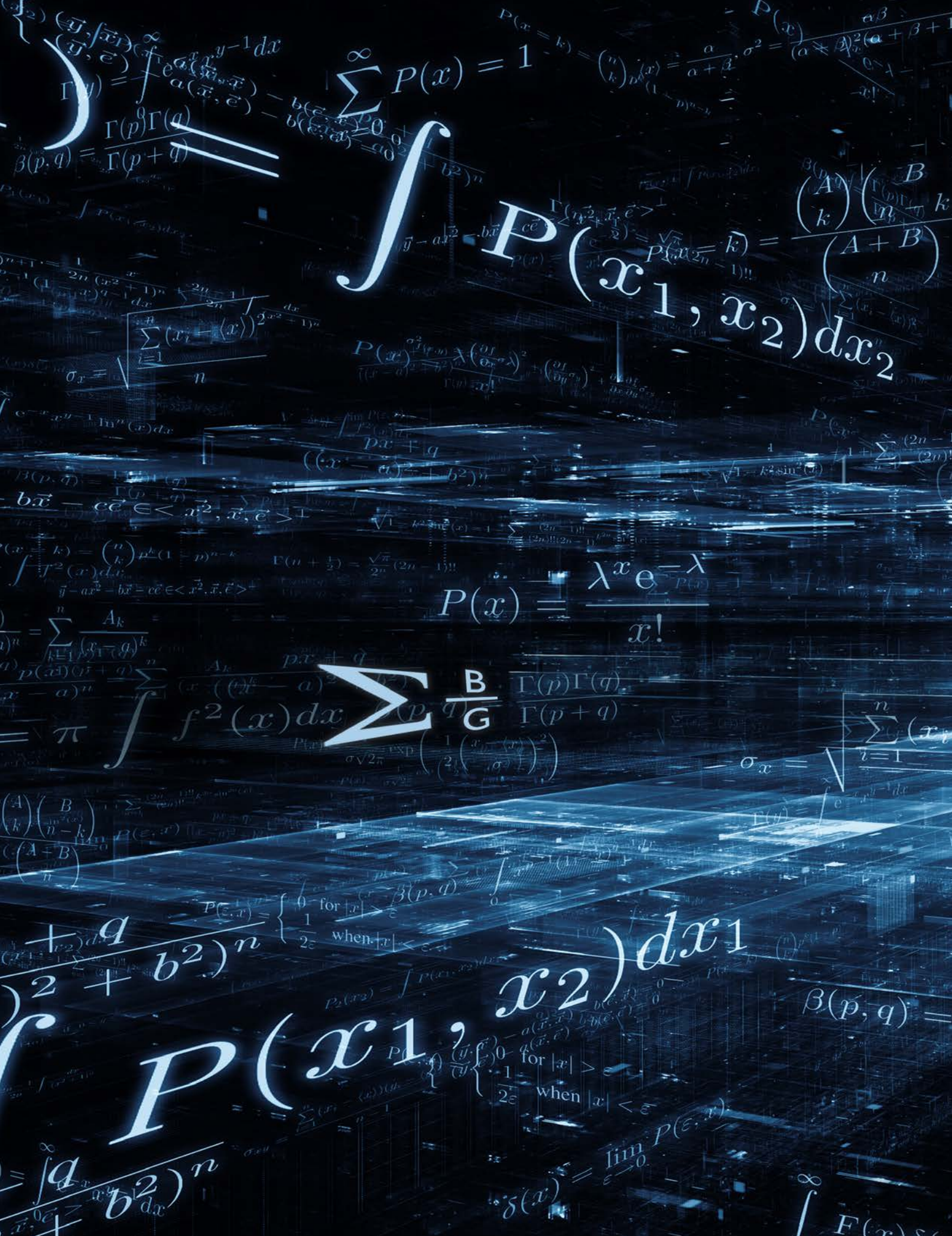
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