UNIVERSITY OF MARYLAND

University of Maryland

Government Effectiveness Advanced Research Center (GEAR)
RFI Response for SPE - RFI - 180001

University of Maryland Overview

The University of Maryland (UMD), College Park, established in 1856, is the state's flagship university and one of the nation's preeminent public research universities. A global leader in research, entrepreneurship and innovation, the university is home to more than 40,000 students, 10,000 faculty and staff, and 352,000 alumni all dedicated to the pursuit of Fearless Ideas. Located just outside Washington, D.C., we discover and share new knowledge every day through our renowned research enterprise and programs in academics, the arts and athletics. And we are committed to social entrepreneurship as the nation's first "Do Good" campus.

UMD is uniquely positioned to support global, complex initiatives through its rigor of research, blended learning, experiential work in centers of excellence, funded grants, philanthropy and focus on Fearless ideas. In a collaborative fashion, UMD envisions the future of educational partnerships to include the practice of such education among and between all stakeholders, with seamless boundaries, open access - built around speed to market, an agility that promotes growth and effectiveness and a mission of integrity, grounded in the desire to make an impact to the work of all neighbors.

Across UMD there are proven capabilities working with Federal Agencies and partner organizations. These include an emeritus DHS Center of Excellence, START and DHS/CBP and NIH Leadership Institutes serving GS 7-15 workforce levels.

It is with this mindset, that UMD eagerly engages with The Office of Management and Budget within the Executive Office of the President in the design of a holistic approach to Federal Government effectiveness and efficacy.

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Mission

The GEAR Center "would address operational and strategic challenges facing the Federal government, both now and into the future, by engaging researchers, academics, nonprofits, and private industry across an array of disciplines, such as data science, organizational behavior, and user-centered design."

Informing the GEAR Center:

1. Given the mission of the GEAR Center, what should be:

o Its strategic approach and operating objectives?

- Strategic Approach

  The principal component of the program strategy should be to leverage the talent and expertise currently existing within academia, together with the private and non-profit sectors, to identify and apply current best practices; as well as innovate new approaches, to help the federal government address the challenges the public will face in the remainder of the 21st Century. These "wicked problems" include ensuring affordable health care, availability of sustainable energy, ensuring the cybersecurity of the nation's infrastructure, reducing income inequality, and protection of individual rights and accountable use of artificial intelligence.

- Operating Objectives

  The Center should:

  - leverage existing national NGOs active in priority GEAR areas of focus;
  - establish a network of researchers, thought leaders, and industry partners to tackle national complex issues and challenges;
  - conduct research to inform pilot tests of promising approaches, with an ultimate goal of scaling and informing national policy; and,
  - employ data and analysis of data to develop solutions, services, prevention efforts, and programs that improve the quality of life for all citizens.

o Specific areas of innovation and practice to prioritize? For example, we anticipate an early focus on reskilling the Federal workforce and growing the economy through appropriate commercialization of Federal data.

- Cross-Sector Professionalization

  As trends in governance lead to more and more involvement of the private sector with government, the Federal workforce needs a new cadre of skilled and knowledgeable professionals. Re-skilling should include development of capacity for public-private partnership in the relevant parts of the Federal workforce. Partnerships have a

substantial history but have yet to live up to their full promise, due in large part to the paucity of professionals with the skills to organize, manage, lead, and scale these collaborations. Such professionals need not only excellent negotiation and management skills, but also deep knowledge of the diverse languages and cultures of the different sectors, knowledge that is not solely acquired through traditional graduate education. A key underpinning to this approach is the understanding that agility and future readiness is paramount to this initiative and both broad and deep levels of support are required to create a resilient Federal workforce.

- Innovative Tactics

  One way of making the connection is via workshops and "hackathons" during which skilled volunteer technical Subject Matter Experts apply their expertise to advancing the analytics available to local, state and federal governments in order to re-analyze and re-examine existing public policy solutions on the basis of more rigorous command of the evidence.

  The initial focus should be on the following areas:

  - outcome based acquisition of goods and services, to ensure government acquisition efficiency;
  - the appropriate uses of partnerships to leverage private sector resources and non-profit mission-expertise for the public good;
  - appropriate risk management in critical infrastructure to address cybersecurity challenges;
  - data analytics to leverage the vast federal data repositories to inform, implement, innovate and evaluate policies; and,
  - the potential uses of Artificial Intelligence, as well as the challenges.

2. How should a GEAR Center be operationalized, including its structure, such as a physical center, a network, a consortium of institutions, or other approaches?

- Hub and Network

  GEAR would best function as a network/consortium with at least one strong hub to serve as its' "platform," or "backbone." The University of Maryland College Park, for example, is well-placed to facilitate access to a broad network of academic and NGO partners through its role as a land grant institution, with extensive academic and service links with nationally-ranked academic institutions (UMD is a Big 10 school) and Maryland state agencies. NGO partners include national organizations such as the Council of State Governments and critical infrastructure sector institutions such as the Multi-State ISAC (information sharing and analysis center).

- Governance

  The Center must develop a governance structure of key senior stakeholders, to include the appropriate government officials, to identify research objectives and priorities, help identify the resources, evaluate the Center's operation, and help advocate for policy changes. A form of "independence and validation" should underpin GEAR as collaborators move in and out of the Hub/Network model (noted below).

3. What models of public-private partnership should inform the GEAR Center?

o What sectors, stakeholders, types of expertise, and networks or programs should be involved?

- Public/Private Expertise

  The GEAR Center should employ a broad, yet deep approach to its mission and solutions, involving diverse perspectives from all sectors. GEAR should also include expertise on the public-private partnership itself. Public-private partnerships are hard to do well, given the very different cultures, languages, and practices of the public and private sectors.

  Clearly, input from private sector technology vendors is critical to developing future technology platforms, "skunkworks" initiatives, and maximizing use of data. Also, private sector management consulting expertise will be valuable as the complexity of the challenges run across functions and commercial industries. University-wide programs in cybersecurity, public policy, business, information technology management, data science, leadership development and engineering should be key players in the aggregation of GEAR Center outputs.

  GEAR should also incorporate both the for-profit and nonprofit sides of the non-public sector, specifically those focused on Federal government performance including a wide-range of entities such as the Partnership for Public Service, the Senior Executives Association, the Performance Institute, and the Council on Professional Associations on Federal Statistics, the Government-University-Industry Research Roundtable (GUIRR), to name a few.

o What should a governance structure look like or include?

- Keys to Governance Success

  The extensive research on governance of public-private partnerships makes clear that at least four elements are key to success:

  1. A "backbone" or "platform" organization charged with covering most of the transactions costs to ensure organizational stability, monitoring and assessing

the activities of the partners, and maintaining fidelity to the public mission of the partnership to ensure that public value is created.
2. A clear Memorandum of Understanding with commitments from each party, and some cost to failure to deliver.
3. Conscious and careful changes of the internal practices of the partner organizations to make them more effective partners and better generators of public value.
4. A clear set of goals and metrics to measure progress toward those goals.

The creation of a flexible and nimble ecosystem of support for the readiness of the Federal Government to react and maintain relevancy is the recommended thematic over time and no matter the initiatives at hand.

o How should the GEAR Center maintain mission focus without the Federal Government being responsible for ongoing administration, staffing, and operational management?

- Land-Grant University Model

  One way to make the GEAR platform self-perpetuating would be to connect it to the extension and service mission of the nation's land-grant universities. Using a spoke-and-hub system, GEAR could build upon existing training resources at these institutions, distributing best practices and educational resources from a central hub out to a university network, working with associations such as the Association of Public and Land Grant and Universities and the National Association of Schools of Public Policy, Affairs, and Administration to harness expertise in training and administration.

- Revenue Sources

  The GEAR Center hub could be funded through a combination of revenue sources including foundational fees from philanthropic sources concerned with improving government performance, supplemented by ongoing revenue from training, technology commercialization and other services.

  Additionally, challenge competitions have been successful means of developing innovative solutions without incurring significant government cost. **Competitions such as the XPrize** provide a means for the public sector to incentivize private development of key technologies and capabilities at reduced cost to the taxpayer. Most federal agencies have utilized one or more forms of prize competition to identify new capabilities, or sources of support. A compelling recent example is the DHS InnoPrize program, through which the Department is seeking innovative solutions to enhance boating safety. *https://www.dhs.gov/science-and-technology/prize-competitions).

  More generally, prize competitions can encourage stakeholder interest in public-private collaboration, and promote business growth.

4. What examples already exist that serve a purpose similar to the GEAR Center, whether for governments or other institutions?

o How might such examples be replicated, scaled, connected, or more systematically leveraged?
o Opportunities for the Government to learn more about these examples, such as through a demonstration, virtual interaction, or other method

- Examples of Successful Partnerships

  There is a rich case history of successful partnerships involving all levels of government and the private and non-profit sectors to solve policy challenges, including through the use and sharing of data.

  - **Federally funded research and development centers (FFRDCs)** provide disinterested analysis to government agencies based on scientific study of public policy problems. Examples include the National Cybersecurity Center of Excellence (NCCOE) that serves NIST and provides research and stakeholder engagement on cybersecurity on an explicitly public-private model. Its activities span research, curriculum development, and training for government officials.

  - **University affiliated research centers (UARCs)** are another model - this time utilizing links between state universities and the Department of Defense and other federal agencies. Substantive covered include: nanotechnology research, space science, engineering topics and biology. UARCs link together academic researchers, private companies and government agencies into research collaborations. They also provide a hub and spoke arrangement for translating research and data into commercial products.

  - **ERIC - the Electronic Registration Information Center** - is a collaborative operated by 26 state governments in association with the Pew Charitable Trusts (https://ericstates.org). As a multi-state partnership, ERIC uses sophisticated database technologies to enable better voter registration system performance and security. ERIC's services are trusted, and support inter-state data sharing and analysis of cyber risks to similar voter registration systems. As a collaborative, state secretaries of state run the organization's programs, and jointly set its priorities and outreach activities. DHS collaboration with ERIC for voter registration security dates from 2016.

  - **President's Council on Year 2000 (Y2K) Conversion.** To address the problem of the Y2K date rollover for computer systems, President Clinton signed Executive Order 13073, establishing the President's Council on Year 2000 Conversion, in February 1998. The Chairman of the Council was charged with: 1) overseeing the activities of agencies; 2) acting as chief spokesperson in national and international forums; 3) providing policy coordination between executive branch activities and state, local, and tribal governments; and 4) promoting appropriate

federal roles with respect to private sector activities. Although the Council could not be held directly responsible for how the private sector faired through rollover, federal systems were so intimately connected with those of the private sector that the Council's success would largely hinge on how private industry did. The Council created a networked structure, leveraging federal agencies to coordinate the public and private response, that eventually grew to include international partners.

- **Centers for Disease Control and Prevention (CDC).** The CDC has a nationwide network to share information about public health incidents. The network enables collaboration with federal, state, territorial, tribal, and city/county partners to develop protocols and stakeholder relationships to ensure a robust interoperable platform for the rapid distribution of public health information. CDC's Health Alert Network (HAN) is the primary method of sharing information about urgent public health incidents with other federal agencies; federal, state, territorial, tribal, and local public health practitioners; clinicians; and public health laboratories. The network extends, through state and local public health organizations, to the private and nonprofit sectors (hospitals, clinics, clinicians).

- **Closing the Skills Gap in Greater Cincinnati**. Collaborative partnerships at the local level, drawing on data and resources up the chain to the Federal level, have become increasingly commonplace, and successful. The Detroit partnership with JP Morgan and local non-profits is one prominent example. Another is The Partners for a Competitive Workforce in the Ohio/Kentucky/Indiana tri-state area, founded in 2008 to address the regional skills gap between employers and employees.

  This effort has involved more than 150 partners who have come together from the public, private, and non-profit sectors to bridge the employer/employee skills gap, leveraging more than $40 million in financial support. The partnership has used innovative approaches like reviewing U.S. Labor Department market data to identify potential new employment sectors such as finance/insurance and transportation/distribution/logistics; and, did follow up evaluation to determine the business value/ROI of this work to show model effectiveness to employers. The effort has been very successful with more than 80 percent of job seekers receiving retraining, 80 percent gaining employment with a retention rate greater than 70 percent.

7. What models, approaches, and opportunities should inform an anticipated early focus on reskilling and upskilling Federal employees? For each questions, please cite any available data or research to support your answer.

o What are leading practices for effective reskilling, upskilling, and training adult workers, including opportunities for new applications of existing models?

o What approaches could be piloted for possible application and scalability across the Federal sector in various learning domains (e.g., cognitive, affective, behavioral) - such as gamification, use of massively open on-line courses (MOOCs), apprenticeship models, and other new approaches?
o What are examples of metrics currently used to assess the effectiveness of reskilling and upskilling efforts?
o Do any of the suggested approaches have a particular nexus to the Federal workforce and/or to the automation of existing workflows, and transformation of existing skills to in-demand skills expected to comprise the "future of work"? If there are occupations or skill sets that would provide an opportunity-rich environment, please include specifics.

- Aptitude Tests

  The federal government has long used aptitude tests (e.g., the Armed Services Vocational Aptitude Battery, or ASVAB, in use since 1968), and is continuing to update and expand those tests to include new work roles. The University of Maryland Center for Advanced Study of Language (CASL) has developed a number of aptitude tests for federal clients, including an updated version of the Defense Language Aptitude Battery (DLAB2; Bunting et al. 2011), and an aptitude test to determine which individuals have potential to reach advanced proficiency in a language (Hi-LAB; Jackson & Doughty, 2015; Linck et al., 2015). CASL also developed the Cyber Aptitude and Talent Assessment (CATA) and tailored it for the needs of the United States Air Force (Campbell et al., 2017) and the United States Navy (Saner, et al., 2017).

  Aptitude testing improves the workforce by assisting with selection of the individuals with the greatest aptitude for training and work in the field, which improves training outcomes, training throughput, and will hopefully improve retention in the field. Aptitude tests have been used effectively at initial accessions, but can also be used for selection for retraining, (e.g. the CATA-USAF has been used in this way). Use of aptitude measures should continue to be broadened and to improve selection for hard-to-fill work roles in the military, federal government, or general workforce.

  Most state-of-the-art aptitude batteries are presented as series of measures made to be visually appealing and highly cognitively engaging. Proctored conditions are usually required for aptitude tests that will be used in an official capacity to ensure uniform testing conditions for all candidates and prevent cheating. This significantly truncates the testing audience to those who are interested and motivated enough to devote the time to travel to the testing location and take the test, many of which require multiple hours of time. To broaden the testing audience short versions of the test could be offered on social media platforms, which could then link interested test takers to more information about their scores and how to take a full version of test. Other potential incentives could be added to increase interest and engagement, including providing information about how a test taker's performance on the pre-test compared to peers or a listing of the types of careers that might be a good fit.

Once recruited, personnel must be trained (or re-trained) for their work role. CASL's Tailored Language Training Initiative (TLTI) showed that training outcomes might be improved by customizing instructional methods to match learners' aptitude profiles. Although this approach has so far only been explored with regard to language learning, it has the potential to increase success in multiple fields.

Metrics for success of re-training can be difficult to collect and interpret appropriately. Although most of the federal workforce and in fact most of the workforce in general have periodic performance reviews, in many cases the performance ratings reflect many components aside from performance (e.g., positive relationships with co-workers, relationship with supervisor, time on the job).

- Workforce Lab

  The GEAR Center should include many Laboratories for Learning, focused on Federal Workforce professional and technical skills development. These intentionally designed Labs would re-imagine the way work is done, and the implications of such on the leadership skills and aptitude of middle to senior level Federal employees. The Labs would provide the natural learning space (both in person and virtual) and physical footprint for working through scenario planning via gamification methods, working within reality-based simulations seeded in new-world challenges and augmented by virtual reality technology, and professional and personal development through Executive Coaching, team building techniques, historical and other contextual learning opportunities (eg, Gettysburg National Park as context for Leadership).

- Development Program Pathways and Micro-Certifications

  The GEAR Center should include opportunities for career-related development, best practice dissemination and experiential learning at all workforce levels.

  - Apprenticeships - Since the beginning of "defined" work, apprenticeships, internships and coops have served the singular purpose of learning while practicing. There is no replacement for this type of experience and they are the ultimate supplement to foundational skills and knowledge acquisition. Higher Education Institutions (HEDIs) of all varieties should be involved in the applicable training and learning avenues of the Federal workforce. Technical Colleges and career-based learning institutes, coupled with research and teaching institutions, all have ownership of meeting organizational relevancy through individual and team education. Current and imagined models of education must be piloted and inform the learning practices of the Federal workforce to build organizational and individual agility and resilience.
  - Leadership Development Programs - As the practice of Leadership has gained traction and validity in the twentieth century, so have the opportunities to define and set expectations around the Leadership function. Sound program management and implementation of organizational goals is a business and

operational imperative that is real. Culture and performance are symbiotic and providing the time and education for managers and leaders to hone their skills impacts teams and organizations. GEAR should pilot new the best in leadership education through multiple sources of education providers. Multi-modal approaches to learning should be explored and then rolled out to the Federal workforce through suggested pathways, bite-size knowledge gains and experiential exercise and practice. These programs should explore the relationship between experience, attitude, readiness and agility in the workforce and promote the best practices to all agencies and within appropriate workforce levels. Champions of learning in each agency should be identified and be held accountable for learning and the mobility of the workforce through these pilot programs and best practices.

- Micro-certifications and Stackable Learning - Working with the Educational Technology Sector ("EdTech"), GEAR should develop, test and inform large-scale upskilling and reskilling efforts. Technology backbones and educational frameworks must work together in harmony to capture the best learning modes, meet varying individual learning styles and use predictive data to ensure skills gaps and succession planning are effective for the future. In collaborative fashion, the educational sector as a whole should nominate themselves to participate in these efforts and create an advisory board of next level leaders in right-sizing educational efforts.

- <u>Academic Research</u>
  The GEAR Center should embed the current and future work of academia into its support functions. Purposeful use of funded and access-enabled thought leadership should inform the possible solutions and future work of GEAR itself. Data mined through the objective lens of academia should be made available for use in aggregation and pilot programs of the Center. Through this integrative approach, a data driven decision making mindset should emerge and be leveraged throughout the workforce. Rewards to tackling new challenges should come in the way of research and exploration of best practice outcomes that feed back into the educational ecosystem of not only GEAR, but the Federal Government in totality.

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University of Maryland Fast Facts

UMD Colleges: 12

Number of Faculty: 4,610

- Tenured/Tenure-Track: 1,480

- Nobel Laureates: 3

- Pulitzer Prize Winners: 6

- Members of the National Academies: 60

Fall 2017 graduate student enrollment: 10,653

Fall 2017 undergraduate enrollment: 29,868

- 75.7% Maryland residents

- 24.3% Non-Maryland residents

- 43.3% Minority

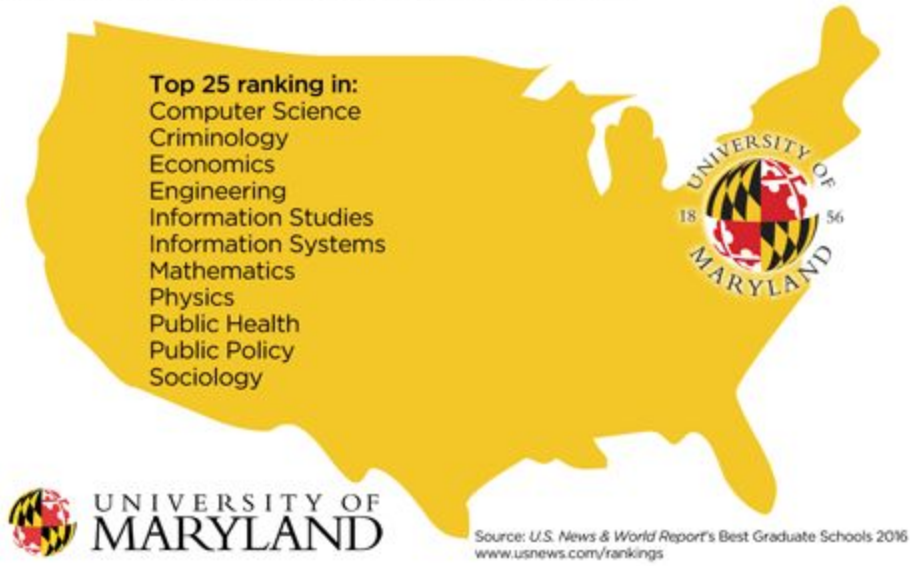
- 116 countries represented

Degree Programs: 90+ Undergraduate and 190 Graduate

Research Awards in FY 2017: $514,747,497

UMD in Nationwide University Rankings

The **University of Maryland, College Park** is the **only university in the nation** to rank in the top 25 in all of the following disciplines:



Source: *U.S. News & World Report*'s Best Graduate Schools 2016
www.usnews.com/rankings