ESTABLISHING A GOVERNMENT EFFECTIVENESS ADVANCED RESEARCH (GEAR) CENTER

RESPONSE TO REQUEST FOR INFORMATION NOTICE



PART I: Organization Information

LMI was established in 1961 as a not-for-profit consulting firm dedicated to improving the management of government. Today, LMI continues this mission by bringing together unique partnerships with academia, government, and industry. Through the LMI Research Institute's research and development (R&D) program, LMI has dedicated millions of dollars in researching and developing innovative solutions to current and potential problems faced by the government. With the LMI Research Institute (LRI) coordinating R&D at LMI, and LMI staff leading and working on the projects, we share results across government, academic, and industry engagements, fostering a collaborative approach to innovation. Additionally, the LRI develops formal working relationships with universities across the country, bridging the gap between academia and industry to create innovative solutions and explore new research topics.

1. Company, address, and point of contact:

Company: Logistics Management Institute (LMI)

Address: 7940 Jones Branch Drive, Tysons, VA 22102 Administrative Officer: Mr. Carlton Roxbrough, Contracts Administrator

Email | Phone: croxbrough@lmi.org | (703) 677-3638

2. Data Universal Numbering System (DUNS) Number: 053385738 | CAGE Code: 2D675

3. Business Size and Classification: LMI is a not-for-profit organization with size category of Other than Small Business

4. Past Experience:

Reserve Integration, Manpower and Reserve Affairs, OSD P&R / Civil-Military Portfolio				
Government Technical Lead	Portfolio of Programs Managed			
Name: Mr. Ernie Gonzales Email: ernesto.c.gonzales.civ@mail.mil Telephone number: 703-693-8630	Oversight, policy and Program Management Office (PMO) of Innovative Readiness Training (IRT), DoD STARBASE and National Guard Youth Challenge Program (NGYCP) which, separately, have public-private partnerships with foundations supporting education, outreach programs,			
	communities and non-profit organizations across the U.S.			
Contract Information				
Contract Value: \$5,101,300	LMI is Prime with Multiple Small Business Partners			
Period of Performance: 9/27/2017 – 9/26/2018 (previous PoP was 9/28/2016 – 9/28/2017)				

Science, Mathematics and Research for Transformation (SMART) Scholarship for Service					
Program					
Government Technical Lead	Portfolio of Programs Managed				
Name: Mr. Tylar Temple	Program Management Office (PMO) support for all SMART				
Email: tylar.c.temple.civ@mail.mil	student engagement, academia engagement, and Department				
Telephone number: 919-549-4242	of Defense (DoD) sponsoring facility engagement.				
Contract Information					
Contract Value: \$30,000,000	LMI is Prime with Multiple Partners, including Colleges				
	and Universities				
Period of Performance: 10/2/2017 – 10/1/2018 (base year); with four (4) option years					

PART II: Response to RFI Questions

SECTION 1: Informing the GEAR Center

- 1. Given the mission of the GEAR Center, what should be:
 - Its strategic approach and operating objectives?
 - 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.
 - The process to identify and prioritize additional new areas on an ongoing basis?

STRATEGY & OPERATIONS

Sustained partnerships across government, industry and academia are essential to addressing a new generation of innovative and affordable solutions. Discovery and invention must be leveraged for the Federal government to continue to deliver world-class services to its citizens. Agile and resilient national security depends on capabilities that transform the way the Federal Government does business. These capabilities are enabled by advancements in computation, analytics, connectivity, and security.

The GEAR Center's approach to accomplishing its mission of leveraging applied research to improve the delivery of citizen services, stewardship of public resources, and development of the public-sector workforce to meet 21st century challenges should be interdisciplinary, data driven, and groundbreaking, while reflecting a real-world understanding of how the government currently operates. Leveraging technology, best practices, and "out of the box" thinking to create new business interactions will help close the operational and technological gap between the public and private sectors. Not only will the GEAR Center help to advance the Federal Government to match its private sector counterparts, but also shape and build the foundation for future capabilities through research, testing, and prototyping new methodologies and strategies.

To meet the apparent immediate needs and priorities of the Federal Government, the GEAR Center's initial operating objectives to reskill the workforce and grow the economy through appropriate commercialization of Federal data would include:

- (1) Partnering with academia and industry to conduct applied research.
- (2) Bringing together Industry, Academia, and Federal government leaders in a learning forum to exchange lessons learned to foster learning environment (Example: Institute for Defense in Business (IDB)).
- (3) Connecting the future workforce with current workforce through meaningful internships/workforce development program (i.e., fellowships, Intergovernmental Personnel Act (IPA) opportunities, IMAs, etc.). Academia partners would allow students and faculty to participate in the meaningful internships/workforce development program to drive innovation within government and industry, and Industry would allow their leadership and workforce to participate to share best practices for application to drive innovation within universities and government.

- (4) Offering virtual courses with partner schools to reskill workforce
- (5) Providing an information HUB with data analytics and options for reskilling within industries

The outcome of this strategy is based on the expectation that as result of the Public Private Partnership (PPP) alliance, it will produce an outcome far greater than anything that each party could produce independently (https://www.irbnet.de/daten/iconda/CIB12095.pdf).

The GEAR Center will need to prioritize and pilot specific areas of innovation and practice that align with the needs of the Federal government in the fields of Science, Technology, Engineering, Mathematics, Financial Management, and Acquisition. Alignment of the priority areas with the skills and education required for these fields will allow for an early focus on reskilling the Federal workforce and growing the economy through appropriate commercialization of Federal data to ensure the current and future workforce is agile in these high demand occupations across all industries, but especially within the Federal government.

On an annual basis, the GEAR Center will use a data-driven process to identify and prioritize additional new areas of workforce demands using Defense Manpower Data Center (DMDC) data, Department of State's Enterprise Architecture for Resource Planning (EARP) data, and other federal workforce projection databases. The knowledge, skills and abilities for the positions within each occupation in the GEAR Center will be assessed quarterly to determine best practices across all industries. The assessment information will be shared with stakeholders to help identify best practices.

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?

The GEAR Center can be operationalized as a virtual network that consists of government, industry, and academia partners. The GEAR Center can be housed in a partner's facility—government, industry, or academia—with periodic GEAR Center forums hosted by each partner member on a rotating basis at their respective conference facilities.

Supporting the GEAR Center would be a program management office (PMO) to coordinate and synchronize partner activities and to act as a "broker" of training, research, and data stewardship opportunities amongst partners. The PMO would include a core team that manages the program, promotes the GEAR Center's mission, and fosters innovation to solve challenges facing the Federal Government.

Additionally, the virtual network infrastructure would consist of a number of satellite offices at Tier 1 research universities, Think Tanks, and research institutions to promote public sector management research.

GOVERNANCE & STAKEHOLDERS / MODELS

- 3. What models of public-private partnership should inform the GEAR Center:
 - What sectors, stakeholders, types of expertise, and networks or programs should be involved?
 - What should a governance structure look like or include?

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

Models of public-private partnership that should inform the GEAR Center include the Institute for Defense in Business (IDB). The Institute for Defense in Business (IDB) is a nonprofit education and research institute that designs and delivers learning solutions through a PPP with University of North Carolina at Chapel Hill. The IDB spreads knowledge and fosters collaboration among public and private sector organizations and academia to address shared objectives and challenges across a wide variety of organizations, career levels, and functional areas. Many PPPs are found to be useful between universities and other organizations in industries outside of academia, such as construction. For example, the move to using private developers to create facilities provided added benefit of access to new funding sources (i.e. private funding) which was unavailable to universities, and access and expertise in using funding sources such as government grants, loans, and tax credits, has been found to significantly reduce the cost burden on the public partner. PPPs, in the industry of construction, can even provide a university the option to complete the project through off-sheet financing if their current debt structure does not necessarily allow for the undertaking of new, costly projects, thus allowing them to still meet the needs of their students despite concerns of debt capacity.

Members of the partnership have a responsibility endorse the program and seek innovative ways to grow and improve the program. The recommended governance includes a Working Group, an Executive Board, and an Advisory Council to be established and codified through a charter with clearly defined roles, responsibilities, and meeting frequencies in addition to standard operating procedures that flow down from a strategic plan of which the process are under the governing bodies preview.

A governance structure must provide oversight and accountability while providing a connection to sustainable commercial and economical benefit. Participants should include representatives from the Federal government, academia, and industry. As an example, the President of the Executive Board would be the Deputy Director for Management, GSA and the Administrator of the Board would be a Federal government seat held by OMB. There would be 5 industry positions and 5 academia positions. There should be an authority document for the governing bodies to justify their existence and serve as a source of advice, advocacy, and engagement for the GEAR Center.

Control mechanisms must ensure the governance structure and public-private partnership as a whole entity is operating as desired. When controlled effectively, the utilization of resources is increased, cost is lowered, and innovation enhanced (Samaddar et al., 2006; Schemmand Legner, 2008). Placing the proper controls across private and public stakeholders can be a time consuming planning processes, but according to research studies on PPPs, it will establish the program a greater probability for success (Keers &Fenema, 2018). A cross-industry partnership strategy map should be developed to provide shared awareness to all GEAR Centers and risk should be addressed.

The GEAR Center should maintain mission focus without the Federal Government being responsible for ongoing administration, staffing, and operational management. The mission should be codified in the authorities of the program and require linkages to exist within each GEAR Center

project to create and reskill a more suitable workforce. The core areas drive economy growth and national security, which will align to the Federal government, academia and industry workforce needs, and maintain a governance structure with keen interest in success for the GEAR Center.

LITERATURE REVIEW

- 4. What examples already exist that serve a purpose similar to the GEAR Center, whether for governments or other institutions:
 - How might such examples be replicated, scaled, connected, or more systematically leveraged?
 - Opportunities for the Government to learn more about these examples, such as through a demonstration, virtual interaction, or other method?

A case study and industry survey is recommended before launching the GEAR Center based on results published in the peer-reviewed article *Managing Risks in Public-Private Partnership Projects* published on May 24, 2018. There are several risks that organizations face when entering into a public-private partnership linked to project governance and project management responsibilities of which were found to include insufficient representation of qualified employees, absence of a shared performance system, assignment of responsibilities and decision-making authority, impractical or inappropriate partnership agreement, and timing of the partnership initiative (Keers & Fenema, 2018). The role of different risk awareness and senior management involvement can create a framework for projects developed to mitigate risk.

Examples of other PPPs that could be replicated include the Institute for Defense in Business (IDB), the Puerto Rico Math and Science Partnership (PR-MSP), and the *W. K. Kellogg Foundation (WKKF)* affiliation with the Academy for Education Development, the State Department of Education, and higher education institutions.

As mentioned above, *Institute for Defense in Business (IDB)* is a nonprofit education and research institute partnered with University of North Carolina at Chapel Hill which designs and delivers learning solutions to address shared objectives and challenges across a wide variety of organizations, career levels, and functional areas through a PPP at the university level.

The *Puerto Rico Math and Science Partnership (PR-MSP)* consists of four (4) universities within the Puerto Rico System (The University of Puerto Rico, Rio Piedras, Mayaguez, Cayey and Humacao campuses) in partnership with the Puerto Rico Department of Education. Supporting institutions include seven (7) campuses of the University of Puerto Rico system, the Inter American University of Puerto Rico System, and the Arecibo Observatory as well as informal science education centers and industry partners. The Partnership's activities center on four (4) goals: (1) Empowering schools through challenging K-12 Math and Science curriculum and professional development; (2) Increasing K-12 mathematics and science teacher quality through the preparation of future teachers and certified teachers; (3) Strengthening the mathematics and science knowledge base through educational research, assessment, and evaluation; (4) Creating sustainable K-12 and higher education partnerships. Over 300 mathematics and science faculty and scientists from university partners and supporting organizations form four regional supporting teams. These teams work directly with K-12 Mathematics and science teachers and school and

district personnel to provide professional development supporting the implementation and evaluation of challenging research-based curriculum and assessment to optimize math and science education for 305,000 students in 584 K-12 schools across Puerto Rico. The provision of new professional development and credentialing opportunities for mathematics and science teachers impacts over 5,000 in-service teachers. The partnership is established 30 school-based Math and Science Resource Centers and a Math and Science Education Website to disseminate the challenging curricular and educational improvements among all schools in Puerto Rico. University of Puerto Rico was the sponsor and Department of Education funded the grant as a cooperative agreement at a value of \$35,599,846 from 1 September 2003 through 31 August 2013.

The W. K. Kellogg Foundation (WKKF) affiliation with the Academy for Education Development, the State Department of Education, and higher education institutions began in Michigan in 1994 and coincided with the comprehensive school reform movement promoted by the No Child Left Behind Act, this partnership focused primarily on improving education outcomes in low-performing middle schools. W. K. Kellogg also established a Community College and created scholarships through the public-private partnership Foundation such as the Annual W. K. Kellogg Foundation Community Engagement Scholarship Awards.

SECTION 2: Establishing the GEAR Center

- 5. What model should be used to establish a GEAR Center, including:
 - The most effective and low-burden mechanism to establish a GEAR Center, such as the Government issuing a challenge, pursuing a traditional procurement, or an alternate approach?
 - If the Government were to pursue a challenge or other open competition, the key considerations in establishing a panel of judges?

The Government should consider greater leveraging of Cooperative Research and Development Agreements (CRADAs). A CRADA is a written agreement between a private company and a government agency to work together on a project. Created as a result of the Stevenson-Wydler Technology Innovation Act of 1980, as amended by the Federal Technology Transfer Act of 1986, a CRADA allows the Federal government and non-Federal partners to optimize their resources, share technical expertise in a protected environment, share intellectual property emerging from the effort, and speed the commercialization of federally developed technology. CRADAs are an opportunity for government to leverage Industry technology investments, while industry leverages government access to facilities, information, and personnel.

Although CRADAs have been in existence for almost 40 years, they are rarely used because they are complicated to set up. The GEAR Center could become, essentially, a third-party broker for CRADAs, matching private sector ideas with government agency sponsors.

- 6. How should a GEAR Center be funded? The Federal Government expects to provide seed funding to support near-term establishment of the GEAR Center agenda, but a market-driven model will be needed to sustain the Center facilities, operations, and agenda over the long term.
 - What could be sustainable funding approaches, including sources of funding?

• What market incentives are necessary to make the Center sustainable?

Most public-private partnerships have a clearly articulated revenue stream associated with the investment. Table 1 provides some examples.

Table 1. Examples of public-private partnership funding methods

Туре	Examples	Method	Public	Private	Academia
Construction of a tangible asset	Toll road, bridge, school, water treat- ment plant, homes	 The private sector loans (invests) money up front for construction of a public asset The private sector is then repaid over time from usage fees Usage fees could be from government or from users 	Federal, state, local agencies	Pension fund Large com- panies	Rarely involved
Creation of new prod- ucts	Pharmaceuti- cals, biotech- nology, computer tech- nology	 Public and private sectors jointly fund research (if the public sector funds this through grants, it would not be a PPP) Private sector goes on to produce the new prod- ucts, earning revenue 	Federal agencies such as NIH, Agriculture	Large companies with research capabilities	Universities with re- search ca- pabilities
Analyze how to im- prove oper- ations	Common- wealth Center for Advanced Logistics Sys- tems	 Each PPP participant pays its labor costs The public sector implements the improvements Industry can apply the solution to other customers, earning revenue from the other customers 	Port of Virginia	LMI	Universities
Shared service provider	Financial man- agement sys- tem or payroll system	 Industry sets up a computer system to process government transactions Government pays on a per-transaction basis 	Federal agency	Software in- tegrator	Rarely in- volved
Community service	Volunteer service program (AmeriCorps)	 Public sector funds are matched by private sector Not-for-profit organization does the work using the funds 	CNCS	Corporate foundations	

The model proposed by LMI is that the GEAR center achieve funding self-sufficiency by serving as a compensated broker for (1) cooperate research and development between government, academia, and industry; (2) access to mutually beneficial data sets controlled by government, academia, and industry; and (3) providers of education and training services that can transform the government workforce to meet next-generation challenges.

This approach builds on association models such as the Partnership for Public Service (PPS) or American Council for Technology-Industry Advisory Council (ACT-IAC). PPS receives sponsorship funding from private sector companies for activities such as a speaker series. Corporate members of ACT-IAC conduct research into topics selected by government as being of current interest; member companies donate staff time to formulate solutions as white papers and briefings which are delivered to government.

Currently, government makes hundreds of data sets available to the public at no charge, including on the data.gov web site. The data has been developed using taxpayer resources, and it is unlikely that the government will suddenly start charging for access to the data. However, it is possible that a CRADA project could involve commercialization of federal data. Government would bring data to the project; industry would bring ideas for interpreting and presenting the data in a way that makes consumers (companies or people) want to pay a premium for getting the enriched data. For example, organization like AccuWeather and Weather.com use weather data from the National Weather Service (NWS) to publish enhanced weather predictions, in competition with the NWS's own web site. Another example is the NOAA Big Data Project, which was created to explore ways to make more of NOAA's extensive weather and climate data available to the public. The program uses CRADAs with Infrastructure-as-a-Service (IaaS) providers to broaden access to NOAA's data resources. The CRADA holders derive benefit from the arrangement by, for example, charging for computing resources that users employ to query the (free) data.

Under the CRADA, government and industry would work together to enrich the data, and industry would return a portion of the profits to the GEAR Center.

SECTION 3: Anticipated Early Focus Areas

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

According to "A Guide to Upskilling America's Frontline Workers – A Handbook for Employers," developed by Deloitte and the Aspen Institute in 2015, some of the leading practices for effective reskilling, upskilling, and training adult workers fall into three categories: work-based learning, continued education, and career navigation. Once an assessment of the workforce growth skills is completed and a determination of where an organization falls within a "training maturity spectrum," an upskilling program can be developed to meet the needs of both the workforce and the organization. Work-based learning initiatives include On-the-Job training, apprenticeship programs, cross training and job sharing. Continued education programs include professional certifications and higher education opportunities that can be attained through resident or on-line courses. Career navigation entails mentorship, sponsorship and career coaching from seasoned employees within an organization.

Any number of upskilling or reskilling approaches could be piloted for possible application and scalability to meet an organization's human capital requirements. However, a key consideration in the application of any approach is the maturity level of an organization's workforce planning and training programs. For example, partnerships with academia and industry will need to be established if professional certifications or higher education opportunities will be offered. An illustration of an approach is the talent acquisition center at the National Geospatial Agency (NGA). Through this office, the NGA specifically supports employee development initiatives and takes a broader perspective in evaluating its infrastructure and aligning personnel where they best fit mission requirements. An enabler to help execute the NGA approach is their pay-for-performance and recognition program where bonuses, awards, and other training opportunities are used to highlight an employee's achievement and contributions to the Agency.

Metrics currently used to assess the effectiveness of reskilling and upskilling efforts include employee retention, performance, productivity, and commitment. Additionally, tracking spending on the various upskilling and reskilling initiatives help to measure a Return on Investment and value to the organization. Of the three leading practices for effective reskilling and upskilling the workforce, the continued education approach would have the most impact in transforming current skills to meet in-demand skills of the "future of work". Professional certification and higher education programs in the information technology field, particularly in the data analytics or the digital services arenas, should be integral to an organization's workforce development goals and growth plan.

- 8. For an anticipated early focus on how federally owned data could help transform society and grow the economy:
 - Are there opportunities for the Federal government to partner with the private sector to improve data architecture/taxonomy, and data quality/hygiene?
 - Are there innovative economic models that highlight the value of the data, and would encourage private investment to capture that value both within the Government and across the broader economy? What are the barriers to implementing these models?
 - Are there specific data sets that could be further leveraged by the Federal government, start-ups, and the public that, once scaled, have a significant potential to contribute to

the greater good (bolster the economy, improve population health, provide services to the general public, etc.)?

There is a wide range of opportunities for the Federal government to partner with the private sector to improve data architecture and quality that range from health services to financial management to homeland security. There are ongoing PPPs such as ACT-IAC that leverages the Digital Accountability and Transparency Act (DATA Act) to focus on government use of technology to improve public service. The Health Care IT News article of 1 October 2009 states, "Ninety percent of executives surveyed by PWC said the industry needs better guidelines on how health information can be used and shared." In its report "Transforming Healthcare through Secondary Use of Health Data," PWC calls for a public-private collaboration and a role for government in creating incentives for the private sector to collect, share and use health data. The report also urges public-private partnerships to establish standards and redefine technical architecture to allow interoperability.

There are innovative economic models that highlight the value of such data that would encourage private investment. As an example, in the same Health Care IT news article previously highlighted it explained how "among organizations already using some form of secondary data (information collected in electronic medical records), 59 percent have seen quality improvements, 42 percent have achieved cost savings, 36 percent have seen patient/member satisfaction improve and 29 percent have increased revenue." The barriers to implementing this specific health care model, which would apply to other similar situations as well, is the lack of standards, privacy concerns, and technological limitations that are a result of either a lack of experience and/or analytic skills to work in this environment. Additionally, the lack of implementing electronic health records (EHR) contributes to the challenges to fully realizing the benefits of secondary data contained in an EHR.

There are a number of data sets that can be further leveraged by the Federal government, start-ups, and the public that have a significant potential to contribute to the greater good. The 29 June 2018 Gartner research study, "How to Use Data for Good to Impact Society," cites a number of case studies that fall into the following three categories: 1) leveraging free resources that support Data for Good, 2) allow data and analytic experts to spend time on philanthropic initiatives, and 3) evaluate commercial internal and external data to assess its usefulness for social purpose while also adhering to privacy obligations. Examples of the case studies include:

- NetHope is a consortium and relief organization that provides technology and telecommunication supplies, coordinating relief efforts among 56 other NGOs and nonprofits, as well as 60 private-sector tech companies. In October 2017, Hurricane Maria struck the Caribbean and destroyed power and telecommunications in Puerto Rico. NetHope had information on cell towers that needed repairing on the island. Using SAS Visual Analytics, NetHope was able to prioritize restoration based on population density and accessibility of the towers. NetHope members and tech partners were instrumental in installing Wi-Fi at 90 locations in Puerto Rico, providing connectivity to response agencies and affected communities.
- Learning Circle is a product that started as a project within Nationwide Insurance in 2007 when the then CEO of Nationwide was concerned with low high-school graduation rates

in his hometown of Columbus, Ohio, U.S. The root causes of these low rates could be traced to general problems of any urban center, but also to challenges starting in the elementary school stages. Nationwide allowed a team of data and analytics experts to donate their time to work with local schools and educators to provide data to measure proficiencies, and to provide an early warning to struggling students.

• Digital Reasoning is a software company founded in 2000, based in Franklin, Tennessee, U.S. Its vision is to create software for the good of humanity. Digital Reasoning had been designing software to analyze potential financial fraud and, within national security, analyzing semi-structured data in emails, phone calls and social media posts. Thorn is a non-profit focused on reducing human trafficking. In 2012, Thorn and Digital Reasoning partnered to build an application, Spotlight, to identify potential victims of child trafficking by analyzing social media posts and escort ads. Spotlight is now provided for free to police forces within the United States and Canada. It's estimated to have rescued approximately 6,000 victims and reduced the investigation time by 65%.

LMI is well suited to support the GEAR Center.

- We were founded in 1961 "to bring the best minds to bear on solving our government's most complex management problems."
- We are a not-for-profit 501(c)(3) organization.
- We place a high priority on maintaining our independence and freedom from conflicts of interest.
- We already have well-established relationships with universities through the LMI Research Institute.
- We have board members who are connected to other industry partners.
- We have successfully operated program management offices of many government programs at a wide variety of scale.

We would honor the opportunity to talk with the GEAR Center team about proceeding together.