RFI Response (SPE-RFI-18-0001):

Government Effectiveness Advanced Research (GEAR) Center

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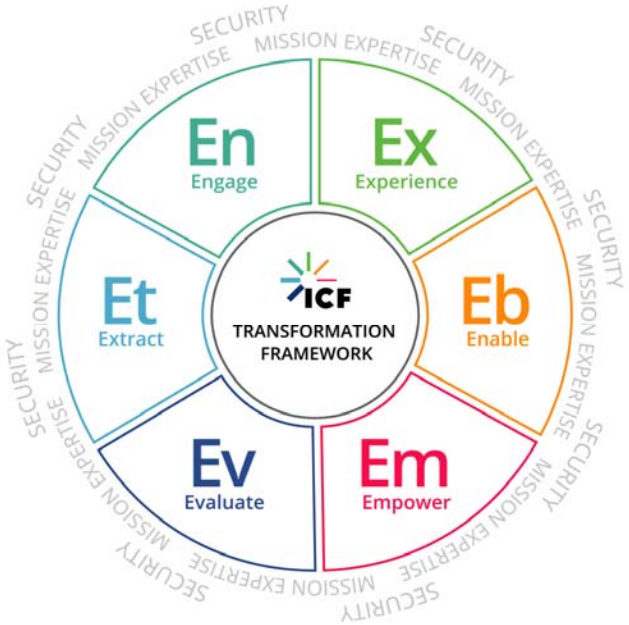
I. ICF's Transformational Framework

ICF partners with the Federal Government and private sector organizations to conceive and implement solutions that make a positive difference to communities and individuals around the world. We assist government organizations in delivering on their mission, providing unparalleled service to the American People, and being great stewards of resources. We achieve these outcomes through the same fundamentals envisioned for the GEAR Center:

- **Reimagining** the way citizens experience and interact with the Government.
- **Rethinking** how government delivers citizen services and data.
- **Reforming** the Core Processes of Federal agencies from IT to Finance to Procurement.
- **Exploring** innovative approaches to developing, reskilling, and redeploying the public-sector workforce.

Our approach is guided by ICF's Transformation Framework, which creates impactful change through human-centered design. The model values leveraging meaningful data, business analysis, actionable results, clear communications, workforce advancement and empowerment, the customer experience, innovative systems that engage users, and evaluation with an eye on bottom line results. These foci allow our experts to break down silos, integrate government systems and structures, translate abstract information from disparate sources into powerful data systems that drive future decisions, and create systems that promote world-class innovation. The key components are overviewed in Exhibit 1.

Exhibit 1. ICF's Transformation Framework

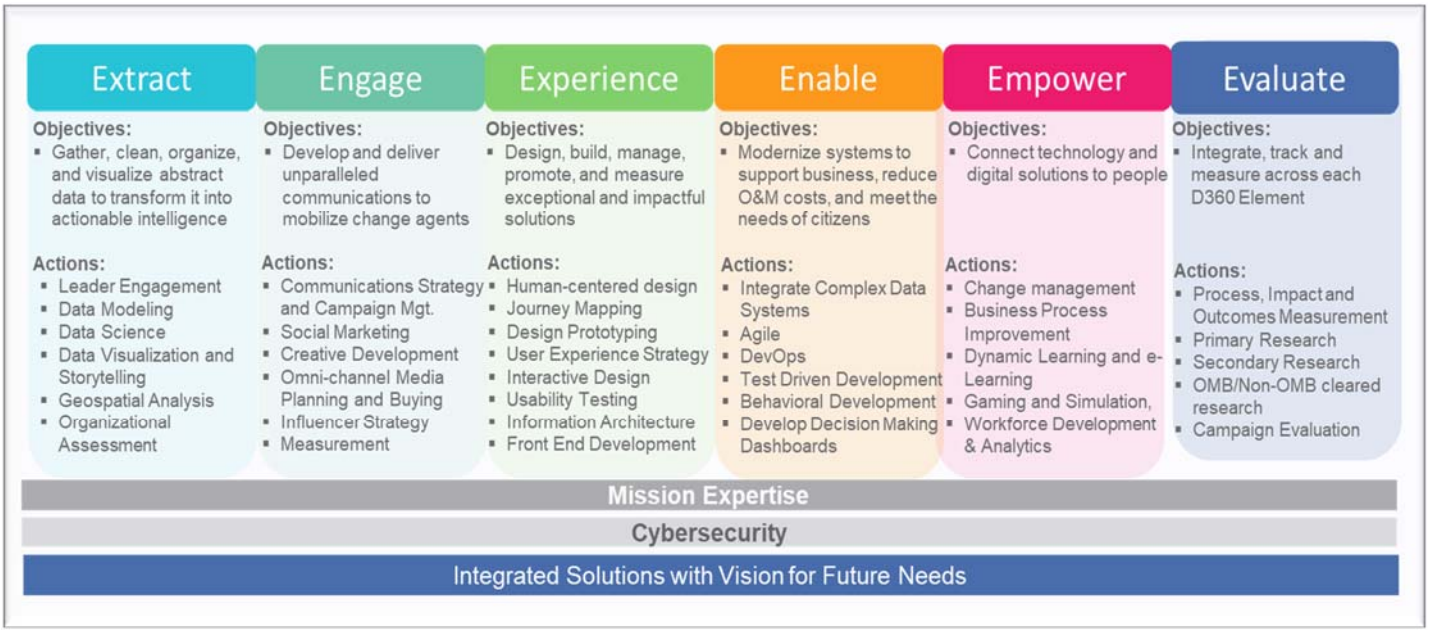


Our framework contrasts traditional models that favor outcomes adapted to existing government structures, traditional processes, recycled practices from legacy programs, or solutions

developed to work within skill sets available. We believe that progress starts with valuing people—customer values, worker skills, and leadership vision—over protocol.

ICF's longstanding passion to address government advancement through people-centered solutions, design thinking, IT innovation, and program implementation has enabled us to envision ways to integrate program services across all levels of government, cultivate and support customer-centered government communities of service, and build models to continuously measure the customer experience and program performance. Key objective and actions for each component of ICF's Transformation Framework are described in Exhibit 2.

Exhibit 2. Key Objectives and Actions in ICF's Transformation Framework



All components are underpinned by ICF's mission expertise, commitment to cybersecurity, and development of integrated solutions with a vision for future government needs.

We also understand that it takes a diversity of workforce talents and modern skill sets to implement, manage, and measure people-centered programs. To ensure success, ICF incorporates a three-pronged approach. Our workforce development experts design and implement human capital programs that recruit, hire, train, advance, and retain great talent. Our solution developers construct adaptive, user-oriented systems that function in simple, intuitive ways. Our data architects and engineers advance data-driven government capabilities that help to measure performance, surface insights, and support the public. Finally, we provide industry-leading program management capabilities to guide and support the successful evolution of government service delivery.

This remainder of this response demonstrates our understanding of the GEAR Center initiative, answers the questions put forth in the RFI, and details our corporate experience.

II. Understanding of the GEAR Center Initiative

Government in the 21st Century is fundamentally a services business, and modern information technology and a highly skilled workforce should be at the heart of the U.S. government service delivery model. Yet, today's Executive Branch is still aligned to the stove-piped organizational constructs of the 20th Century, which in many cases have grown inefficient and out-of-date. Likewise, workers' skills are aligned to maintain antiquated government programs. Consequently, the American people and public-sector employees are often frustrated with government's inability to deliver its mission in an effective, efficient, and secure way.

Most Federal Government entities and programs were designed many decades ago, while still others have their organizational roots aligned to the missions of the 19th Century. Their designers could not have anticipated how technology and society would change or how the mission demands on the Federal Government would evolve in the 21st Century. As a result, the government has been slower than the private sector to adapt operations to new realities and has fallen behind the curve, with reported decreases in trust and lower customer satisfaction.

KEY DRIVERS OF REFORM

Reorganizations in the private sector have demonstrated that without efficient and effective implementation, even well-conceived reorganizations may fail to achieve the intended benefits. To ensure effective implementation, the President's Management Agenda highlighted three areas that help drive effective organization transformation:

The GEAR Center initiative makes progress toward a future vision of a more efficient and effective Government that provides a level of service that citizens deserve. Currently, there is little work directed toward providing a forward-looking view on how the operating entities of the Executive Branch should evolve management practices for the 21st Century. The Executive Branch currently lacks the capability to work with state and local governments, businesses, and institutions of higher education to assess the long-term strategic needs of the Government enterprise, and to "test and learn" how to apply innovative approaches to meeting the mission, service and stewardship needs of the 21st Century. This capability is needed to effectively apply theory to practice in a low-risk environment.

The GEAR Center would be a public-private partnership bringing together experts from disciplines ranging from behavioral economics, to computer science, to design thinking, in order

to take a creative, data-driven, and interdisciplinary approach to imagining and realizing new possibilities in how citizens and government interact.

III. ICF Capabilities

ICF (www.icf.com) brings a unique combination of multidisciplinary expertise and program management office (PMO) management paired with system design and integration, digital, and full-service engagement expertise. In addition, we bring human capital and organizational performance capabilities that provide a foundation for successful transformation efforts. This combination of multidisciplinary expertise allows ICF to provide targeted solutions that quickly and soundly meet objectives for government initiatives.

About ICF

- More than 40 years of experience working with the U.S. Federal Government.
- Multi-disciplinary expertise in digital, IT, PMO management, human capital, and organizational performance.
- CX experience across industries in both public and private sectors.
- Capabilities spanning customer satisfaction measurement, data analytics, digital service design, business process improvement, and change management.

ICF has also been working with the U.S. Federal Government for more than 40 years. We have been deeply engaged with transformation projects in government like the Centers of Excellence (CoEs), which are accelerating the modernization of IT infrastructure across the Federal landscape by leveraging private sector innovation and existing government services, and by centralizing best practices and expertise. We have also worked with associations like the American Council for Technology-Industry Advisory Council (ACT-IAC) and the Armed Forces Communications and Electronics Association (AFCEA) to model best practice government solutions.

In sum, our work supports a holistic approach to transformation across the Federal Government. We have expertise in gathering insight, organizational design, business process improvement, change management, and innovation management. We also have specific customer experience (CX) expertise in creating customer journey maps, measuring customer satisfaction, and designing customer-centered services that rise above organizational silos.

IV. ICF Responses to RFI Questions

Informing the GEAR Center

The GEAR Center seeks to establish at a prominent research collaborative as a public-private partnership to inform critical areas for programs and services to meet the needs of the American public. The GEAR Center Collaborative will call upon researchers, academics, non-profits, and private industry to help test hypotheses, rapidly prototype new strategies and models, and help the Government anticipate and respond to changes in technology with implications for service to citizens and Government mission.

The Center will provide the Federal Government with the opportunity to be a leader in innovation, customer service, providing value to citizens, and developing its workforce. Likewise, it will lay the groundwork for where Government operations and services need to be in five, 10, 20 years or more by bringing together researchers, academics, non-profits, and private industry to inform leaders in the Federal Government of the future delivery models for programs and services that meet the needs of the American public. This Center will enable the testing of hypotheses and shape future direction in order to help the Government anticipate and respond to changes in technology and society with implications for how the Government can better serve its citizens. For example, the GEAR Center might examine the impacts to government that are likely to occur due to broader economic forces (e.g., self-driving cars, automation), improving service in programs that rate the worst in terms of public feedback (e.g., immigration system, farmers), and exploring strategies to leverage Big Data and manage data as an asset across government silos.

Further, the GEAR Center would provide capacity to explore questions concerning how government can best harness technological advances to address evolving challenges concerning citizen interactions with the government, Federal workforce skill/reskilling requirements, the leveraging of Big Data, and collaboration with the private sector via grant-making, procurement and public-private partnerships. In addition, it would explore opportunities to better integrate public and private sector innovative fee for service and co-investment models to ensure that infrastructure for the digital age receives appropriate investments and attention.

In the following sections, we provide our responses to each of the questions specified in the RFI.

Response to Question #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. Also, what is the process to identify and prioritize additional new areas on an ongoing basis?

The GEAR Center's strategic approach would be to set the Executive Branch's research agenda and priorities each year based on the vision of the White House and President's Cabinet. The goal would be to assess key documentation such as the *President's Management Agenda*, *Delivering Government Solutions in the 21st Century: Reform Plan and Reorganization Recommendation*s, and cabinet-level agency strategic plans seeking to identify commonalities and develop a unified portfolio of target research projects. These projects would be high priority initiatives that seek to advance the workforce, processes, structures, service models, and IT systems of the Federal Government. An exploratory analysis of existing research reveals the recommended priority areas shown in Exhibit 3, which can be used as a framework for the identification of specific research needs. For example, a cross-cutting research initiative that falls under the 'Workforce' priority would be reskilling the Federal workforce. The *Response to Question #7* provides input on approaches and best practices related to this initiative.

Exhibit 3. Summary of Recommended GEAR Center Research Priorities

GEAR Center Research Priorities	President's Management Agenda	Reform Plan and Reorganization Recommendations	Strategic Plans
Workforce	✓	✓	✓
Information Technology & Data	✓	✓	✓
Customer Service	✓	✓	✓
Accountability & Transparency	✓	✓	✓
Acquisitions & Service Models	✓	✓	✓

With this focus, resultant products would address common needs across government organizations, breakdown interagency silos, and initiate unified change initiatives. This reduces fragmented and disjointed efforts within individual government organizations that increase bureaucracy and red tape for leaders and customers when the attempt to work across agencies and Departments.

To maintain an ongoing stream of relevant research, private and public-sector agencies would be invited to submit inter-government Problem Statements each year. The problem statement concept would allow any interested stakeholder to submit ideas for research by detailing problems that have been encountered and a proposed plan for researching the problem. This approach ensures that the GEAR Center is focused on topics that have been identified as true needs in practice. Following the annual problem statement submission deadline, a problem statement review board within the GEAR Center would then prioritize and select statements for further research that year.

Suggested Problem Statement Format

- Problem Title
- Problem Description
- Objective
- Research Proposed
- Pilot Plan
- Estimated Funding Required
- Self-Funding Model
- Enterprise-wide Implementation Plan(s)
- Estimated Timeline Required
- Anticipated Benefits

Once problem statements have been selected, the GEAR Center would issue challenges to address each of the selected problems. Interested entities would then have the opportunity to submit their research-based responses to the challenge, and then the GEAR Center would evaluate the responses based on a set of predetermined evaluation criteria. Depending on the extent of the problem being researched, the challenge may be addressed through the competition and considered to be complete once the winner has been determined, or alternatively, selection of the winner could then spur additional, in-depth research by the winning entity. Both problem statements and challenge responses would be funded by the entities developing them, while challenge prizes and further research by challenge winners would be funded by the GEAR Center's self-sustaining funding model, which is discussed further in the *Response to Question #6*.

Response to Question #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?

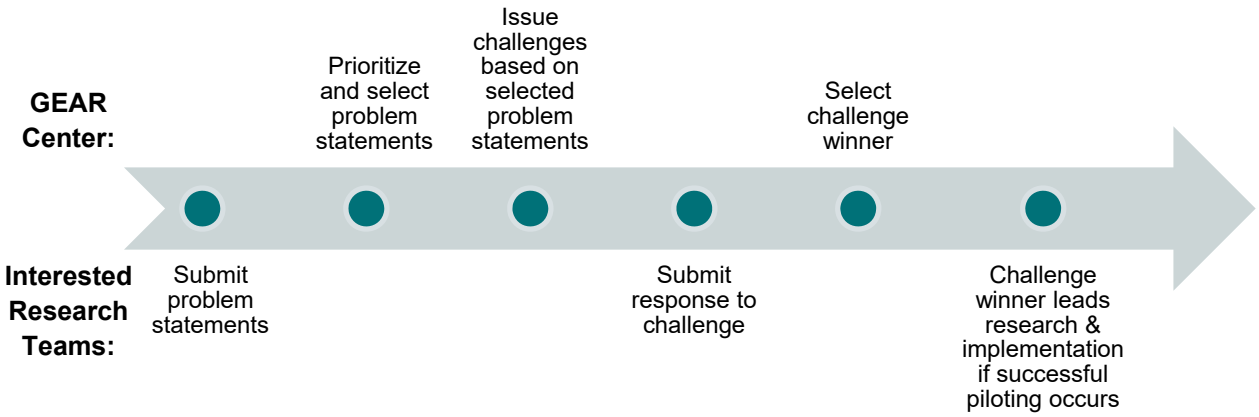
ICF envisions the GEAR Center would support the Executive Branch and create an enterprise-wide capability that engages stakeholders and experts across sectors to address the long-term strategic needs of the Government. The Center would "test and pilot" new concepts, programs, and technologies before bringing to the Federal market. The Center would also allow for vetted concepts to be brought to the Government in an integrated fashion with interagency deployment and monitoring. This would break down siloes, redundancies, and bottlenecks that currently exist between Departments.

The GEAR Center could succeed using a variety of structures or hybrid models as described in our *Response to Question #3*. We recommend a model that includes a GEAR Center Board of Directors comprised of private sector, investment, military, academic, and Government experts serving a multi-year, voluntary term. This would bring critical insight and understanding to the Center from multiple sectors and provide leadership to the Center. The Center would also include a core group of researchers, analysts, and experts that facilitate the review and prioritization of enterprise-wide challenges. The challenges would be derived from the PMA and other Federal strategy documents, or submitted to the Center as problem statements following the model previously described. Selected topics would become the Center's focus and research

agenda for that fiscal year. Individual projects would then be released for competition following the Government's existing Challenge.gov format. For example, the re-skilling of the Federal workforce and Data Commercialization would likely be priority projects to come out of the GEAR Center in year one.

Proposals to research and self-fund solutions to the challenges would be submitted to the Center by any entity including consultant groups, universities, non-profits, start-ups, and think tanks. Once reviewed and approved by the Center's Core Research Team and Board, the studies would be conducted within the Center's or research team members' test environment. Solutions that prove to be successful and add value would then be launched enterprise-wide by the project team using the funding model they originally proposed to create a financially self-sustaining program, practice, or technology advancement. See Exhibit 4 below.

Exhibit 4. Overview of GEAR Center Work Flow



We also envision, as described in the Q&A, the Center would be located, administered, staffed, and managed outside of the Federal Government but maintain clear and consistent communication channels with OMB to ensure the Center Board keeps well-informed of Executive Branch focal areas while the core research team and its partners lead individual projects. The Board's insight and direction would be used to assist in setting the research agenda and oversee the management of projects.

Response to Question #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?

There are numerous existing models of public-private partnerships that can inform the GEAR Center creation. In our *Response to Question #4* (Exhibit 5), we provide an overview of such models. Based on these models and our expertise, we envision the following should be involved in the GEAR Center and/or should be considered when selecting the eventual GEAR Center Structure.

- **Sectors:** Given the desire for the Center to focus on operational and strategic challenges facing the Federal Government, we envision all sectors of the economy be represented over time, with particular focus areas for certain periods based on emergent needs. These emergent needs, and thus the sectors that need to be primarily engaged during a particular period, can be determined based on the President's Management Agenda and other such strategic Federal guidance, as described in our *Response to Question #1*.
- **Stakeholders & Types of Expertise:** Similar to professional organizations like American Council for Technology and Industry Advisory Council (ACT-IAC), we envision that stakeholders include members of government, industry, and academia that represent the GEAR Center research priorities. Stakeholders could serve in a volunteer capacity, and members could be nominated or elected to chair research priority focus areas centered around each research priority, with support from a small, dedicated GEAR Center staff. These stakeholders would require expertise in their respective research priority area, and specifically for those selected to chair focus areas, they would also need partnership- and coalition-building skills such that they can effectively forge and maintain partnerships over time. Another model that the Government could look to for how to structure stakeholder involvement and leadership is the National Science Board that is run through the National Science Foundation (NSF). While this is a more formalized board structure and is funded by Congress, the GEAR Center could adopt some similar practices, such as nominations and appointments, to structure stakeholder involvement, and add prestige to involvement in the GEAR Center.
- **Networks or Programs Involved:** Academic institutions are increasingly moving from an *interdisciplinary* approach to research to a *transdisciplinary* approach, which refers to "research efforts conducted by investigators from different disciplines working jointly to create new conceptual, theoretical, methodological, and translational innovations that integrate and move beyond discipline-specific approaches to address a common problem."[1] For instance, four universities (Harvard, UC San Diego, University of Pennsylvania, and Washington University in St. Louis) are involved in the Transdisciplinary Research on Energetics and Cancer initiative, funded by the National Cancer Institute. This initiative explores the complex relationships between obesity, energy balance, nutrition, physical activity and cancer risk. The University of Vermont's Transdisciplinary Research Initiative and Texas Tech University's Transdisciplinary Research Academy also support transdisciplinary research as a way to explore and solve complex social issues. Within the GEAR Center, we envision engagement of various transdisciplinary research centers at academic institutions as well as engagement of industry and government working on such efforts, supporting a "triple helix" approach in which academia-industry-government work together on complex social issues. Triple helix systems are those in which university-industry-government

[1] https://www.hsph.harvard.edu/trec/about-us/definitions/

(Triple Helix) interactions are systematized into an innovation system that contains knowledge, innovation, and consensus spaces[2].

- **Existing Relationships:** Rather than attempt to create new networks, we recommend linkage with existing research centers and industry networks, including the transdisciplinary research centers referenced above as well as others within industry and government. By "piggybacking" and expanding on what is already working and the networks that have already been formed, we increase the chances of GEAR Center success. In thinking about which networks or programs to involve, we recommend reframing to think about the end-to-end citizen services that the government provides, meaning that opportunities are framed in a way that transcends the government's departmental organization and looks instead at the citizen experience, similar to how transdisciplinary research centers frame their research around the social problems they are attempting to solve. We recommend identifying a "bench" of networks that are "friends" of the GEAR Center and that can be notified when a citizen needs arises that may apply to them.
- **Governance Structure:** Similar to that which is described above, we envision a governance structure in which there is a small core GEAR Center operations staff that supports GEAR Center operations and facilitates coordination among all stakeholders, while elected research priority chairs oversee selection, funding, and testing of promising ideas within each research priority area.
- **Maintaining Mission Focus without Federal Government Management:** We envision a board of directors, consisting of OMB/GSA leaders, who serve in a volunteer (prestige) capacity and are responsible for approving program direction/focus on a yearly basis, similar to a board of directors in a private sector organization.

Response to Question #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? Can you also answer this question connecting to #3?

Exhibit 5 provides an overview of existing models of public-private partnerships that can inform the GEAR Center including each entity's partnership type, funding method, and benefits associated with the structure. The organizations described include:

- Third Sector Capital Partners
- U.S. Army Research Institute for the Behavioral & Social Sciences (ARI)
- Transportation Research Board (TRB)

[2] Ranga, M. & Etzkowitz, H. Triple Helix Systems: An Analytical Framework for Innovation Policy and Practice in the Knowledge Society. Retrieved from: https://triplehelix.stanford.edu/images/Triple_Helix_Systems.pdf

- Challenge.gov
- HHS IDEALab
- GSA Centers of Excellence (CoEs)
- Code for America

Additional information about the organizations can be found at their websites through the links provided.

Exhibit 5. Existing models of public-private partnerships that can inform the GEAR Center.

Name of Partnership & Link to Learn More	Structure Description	Partnership Type & Funding Method	Benefits
Third Sector Capital Partners **www.thirdsectorcap.org**	Third Sector uses a Pay for Success program in which the government identifies critical social issues. Then, private funders provide capital to a high-performing social service provider to work on the social issues. The service provider performs the work and it is evaluated. The government repays the private funder's investment if the work successfully achieves the targeted outcomes. Third Sector facilitates and oversees the process.	Interagency partnership in which private funding is repaid by the government if outcomes are reached	• Leverages private sector capital • Incentivizes high performance • Reduces risk to the government
U.S. Army Research Institute for the Behavioral & Social Sciences (ARI) **www.benning.army.mil/MCoE/ARI-FBRU/About.html**	ARI is Army funded and employs researchers who are government project managers. Researchers lead contracted consultant/academic teams. University fellows also work onsite at ARI sites to support research.	Federally funded public-private partnership	• Hybrid teams of consultants, government researchers, and university researchers work together to address emergent human behavior and social science challenges. • Number of on-staff government researchers is relatively small, allowing for deployment of resources to consultant-academic teams that can best execute on emergent challenges.

Name of Partnership & Link to Learn More	Structure Description	Partnership Type & Funding Method	Benefits
Transportation Research Board (TRB) www.trb.org/ResearchFunding/RFTransportationResearchBoard.aspx	TRB provides research-based solutions to improve transportation. TRB is a program unit of the National Academy of Sciences, Engineering and Medicine, which is a non-profit organization. Contracts are led by universities, contractors, experts, and associations.	Interagency partnership in which funding is shared between government agencies and Congress	• Non-profit that brings together 7,000 engineers, scientists, and other transportation researchers and practitioners from the public and private sectors and academia, who contribute by participating on TRB committees, panels, and task forces; and authoring technical papers, contract research reports. • Have Annual Meeting each year which attracts the more than 13,000 transportation professionals that make up the broader TRB community to problem solve together
Challenge.gov www.challenge.gov	Challenge.gov is the hub for Federal prize and challenge competitions. These competitions are run by Federal agencies to help drive innovation; they typically offer prize money and other incentive prizes to competitors who submit ideas.	Federally funded public-private partnership; often involves "seed" money followed by incentive-based funding	• Offers a way for "seekers" (i.e., Federal agencies with a problem) to crowdsource from "solvers" (i.e., anyone in the public that has a potential solution) • Brings nontraditional perspectives to the table who may not have historically done business with the government • Incentivizes solvers by providing initial "seed" funding and incentive-based funding thereafter

Name of Partnership & Link to Learn More	Structure Description	Partnership Type & Funding Method	Benefits
HHS IDEALab www.hhs.gov/idealab	Lab within the HHS Office of the Chief Technology Officer. Established to encourage innovation within HHS by exploring, testing, and accelerating solutions that improve health and human service delivery. Includes an accelerator for promising new ideas to help build agency capacity to innovate, a Ventures Fund to invest in more sizable efforts, an open innovation team to bring in the public to solve challenges, and an entrepreneurs-in-residence program.	Federally funded; often involves challenges issued through Challenge.gov	• IDEALab offers the support/oversight/coordination and then leverages internal innovators within government • Involves university partnership to help build innovation skills of government participants
GSA Centers of Excellence (CoEs) https://coe.gsa.gov/	CoEs are focused on five different IT modernization areas. GSA CoE staff partner with agency staff across government, as well as contractors, to leverage private sector innovation and existing government services, and centralize best practices and expertise.	Federally funded public-private partnership	• Staffed by small set of government personnel who foster cross-departmental partnerships and best practice usage, combined with vendor support
Code for America www.codeforamerica.org/who	Code for America is a non-profit organization that brings together people to deliver government services that are simple, effective, and easy to use. They partner with local governments to improve the citizen experience. They employ a core set of staff and then engage volunteers to support their efforts.	Interagency partnership funded via donations by private sector organizations, grants, and volunteer service	• Private sector organization that supports government innovation efforts at the state, local, and Federal level

Name of Partnership & Link to Learn More	Structure Description	Partnership Type & Funding Method	Benefits
OpenIDEO www.openideo.com	Open IDEO is the open innovation arm of the innovation and design firm IDEO. Open IDEO employs a core team of staff members and then engages communities and people around the world to submit ideas to solve challenges selected by sponsor organizations.	Interagency partnership funded via sponsor organizations (including select government organizations as well as private sector entities	• Offers a way for "seekers" to crowdsource from "solvers" • Brings nontraditional perspectives to the table

Establishing the GEAR Center

Response to Question #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?

As described in the RFI documents, we recommend that the Government issue a new Challenge under the America COMPETES Act to establish the GEAR Center. This authority offers a flexible and fast method to obtain input from a wide swath of the public, including industry, non-profits, universities, and other entities, to best spur innovation. The Challenge program is specifically designed to encourage innovation, public-private partnerships, and to operate outside of the Federal Acquisition Regulations (FAR). It also provides a vehicle for respondents to describe how they would fund their proposal and establish a self-sustaining program after seed money is leveraged. Furthermore, the Challenge format provides the ideal format to engage the Federal Government enterprise-wise going forward as the Center seeks to fund new projects.

Response to Question #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?

A sustainable funding model for GEAR Center depends on four things:

1. **Clear value**—The Center must establish an agenda that creates value for both participants and the government so that members of the private sector will be more likely to invest in Center initiatives.
2. **Pipeline of participants**—The Center must find ways to attract participants. One idea is creating prestige by telling the story of outcomes to communicate value, recognize partners, and help potential partners imagine working with the Center.
3. **Operational efficiency**—Without a long-term funding source to sustain it, the Center will need to control operating costs and run like a non-profit, where success means funneling the highest possible percentage of funds to mission-critical initiatives.
4. **Reliable source of funding**—Funding approaches are dependent on many variables. Different agencies have different authority and different procurement laws. The type of initiative and the types of government services being addressed will also be a factor. Ideally, the GEAR Center would have its own funding mechanisms, amplified by private investment.

ICF can help the GEAR Center explore models that could succeed. For example, we could explore:

- **No Cost or Share in Savings (SiS) as options for public/private partnership**—We would model how groups like the Federal Motor Carrier Safety Administration partner at no cost with the private sector to deliver new systems and tools, and we would look at ways SiS can be used for projects that create efficiencies.
- **User or processing fees**—Some programs can take advantage of fees they collect to help fund initiatives. One approach would be to first fund ideas to reduce costs so that fee revenue could be applied to other priorities.
- **Outcomes-based contracting**—A model that ties compensation to the contractor's ability to impact the program in a measurable way, which can be used to improve performance against baselines.
- **Pay for Success**—Private funders provide capital to a high-performing service provider to solve a problem. The service provider performs the work and it is evaluated. The government repays the private funder's investment if the work successfully achieves the targeted outcomes.
- **Prize/challenge competitions**—Prizes and challenges should also be considered, especially for initiatives that call for a data science solution (e.g., a new algorithm) or a quick solution to a smaller issue.
- **Membership models**—The Center could function like a membership organization where supporters pay a fee to participate in initiatives, and the fees help fund the initiatives.

There could also be potential funding by repurposing funds currently being spent by the Federal Government. For example, money could be recovered by ending outdated training programs, closing underused data centers, sunsetting redundant data applications, and consolidating call centers.

Anticipated Early Focus Areas

Response to Question #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? 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.

As needs have evolved across the Federal Government, skill gaps in the workforce have expanded to a level where a major reskilling and upskilling of the workforce is required. This phenomenon is not unique to the Federal Government. Indeed, a 2018 report by the McKinsey Global Institute recently estimated that roughly 14 percent of the global workforce may need to switch occupational categories as a result of technological advancement (Illanes, Lund, Mourshed, Rutherford, & Tyreman, 2018).[3] In a recent white paper by the World Economic Forum (2017),[4] the US was rated near the midpoint in terms of the exposure to labor market disruption, and slightly below the midpoint in terms of the capacity of adults for adaptation. This suggests that a dedicated effort is needed to optimize the potential of the US workforce to meet current and future labor market needs.

As described in *Addressing America's Reskilling Challenge,* an information gap between employers, workers, and educational institutions exists in which workers and educational institutions are not up to date on current employers' needs (Council of Economic Advisors, 2018).[5] More communication is needed between these parties, and a national research center such as the GEAR Center is positioned in an optimal way to address this concern.

The solution to reskilling the workforce is not as simple as providing training to meet new skills needs. In reality, a comprehensive workforce development strategy is needed that addresses the full cycle of workforce issues. Exhibit 6 provides an overview of some workforce development best practices spanning a range of important workforce topics.

Reskilling the Workforce: Key Pathways for Change

- Take stock of and recognize existing skills
- Understand skills demand
- Adopt the right mix of financing instruments
- Build and sustain motivation for adult learning through active labor market policies and accessible resources
- Create shorter learning modules that foster continued learning
- Determine the role of different stakeholders
- Recognize and promote on-the-job training opportunities and maximize informal learning opportunities
- Reach those who need it most–SMEs, lower-skilled workers and older workers
- Customized teaching for adults
- Harness the power and scalability of blended online courses, enhanced with virtual and augmented reality when relevant

Source: World Economic Forum (2017)

[3] Illanes, P., Lund, S., Mourshed, M., Rutherford, S., & Tyreman, M. (2018). Retraining and reskilling workers in the age of automation. Retrieved from https://www.mckinsey.com/featured-insights/future-of-organizations-and-work/retraining-and-reskilling-workers-in-the-age-of-automation.

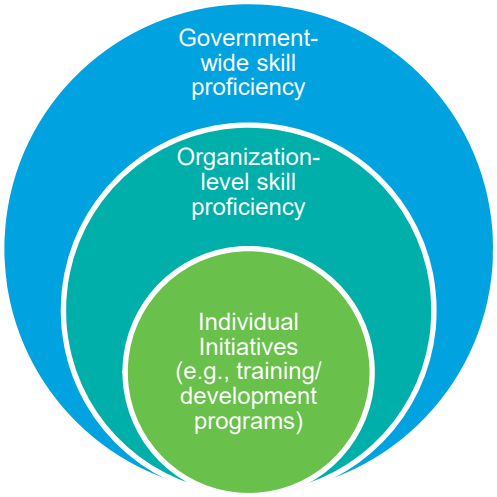
[4] World Economic Forum (2017). *Accelerating Workforce Reskilling for the Fourth Industrial Revolution*. Cologny/Geneva, Switzerland: Author.

[5] The Council of Economic Advisors (2018). *Addressing American's Reskilling Challenge.* Washington, DC: Author.

Exhibit 6. Workforce Development Best Practices

Workforce Topic	Best Practices
Understanding & Structuring the Workforce	• *Workforce Planning* – Systematic workforce planning should be conducted to identify gaps between the current workforce and future needs in terms of the composition and competence of the workforce. • *Organizational Realignment/Structuring* – In many cases, agencies may need realignment to ensure the organization has an effective, efficient structure. • *Workforce Analytics* – Agencies have a myriad of data available to them (e.g., personnel demographics, workforce transactions, applicant flow data, Federal Employee Viewpoint Survey) and should conduct regular analysis of the data to monitor the current situation and identify potential concerns. • *Staffing/Workload Studies* – Measuring and modeling staff workload is a critical exercise that allows leaders to understand how to appropriately allocate staffing expenditures, determine where requirements are not being met because staff are overburdened, and identify the specific areas where staff resources should be invested.
Recruitment & Selection	• *Innovative Recruiting* – Innovative recruiting methods can help attract a high-potential, diverse set of applicants. For example, this may include hosting career days for students, internship or scholarship programs, employee referral programs, focusing on non-traditional applicants, targeting candidates from other industries, and using social media. • *Validated Selection Process* – A validated selection process that is based on a recent job analysis should be in place to ensure the agency is selecting strong candidates through legally defensible means.
Employee Retention, Engagement, & Well-Being	• *Work-Life Resources* – Providing a range of programs and resources that allow employees to enhance their personal life can have a strong impact on employee retention, engagement, and well-being. For example, this may include employee health programs, telework and flexible work schedules, family and dependent care programs, and employee assistance programs. • *Employee Communication and Innovation Tools* – As more teams work virtually, it is critical to ensure the workforce has access to effective communication tools that allow employees to easily connect, communicate, and collaborate. This can include concepts such as enterprise social networks and virtual

Workforce Topic	Best Practices
	communities of practices that allow employees to share knowledge and foster innovation.
Training, Development, & Performance Management	• *Training Needs Analysis* – A training needs analysis should be conducted in cases such as when significant skill gaps exist in the workforce, when changes in the mission or work have occurred, or when overall training offerings have not had a systematic recent review. • *Training (Live, Web-Based, Virtual, Mobile)* – Employees should have access to a broad array of training that enhances the skills required for successful performance on the job. This can also incorporate newer methods such as gamification, massively open on-line courses (MOOCs), and microlearning. • *Training Evaluation* – Regular training evaluation should be conducted to assess participant reactions, learning, transfer, and performance improvement resulting from the training. • *Coaching & Mentoring* – Coaching and mentoring programs allow employees to learn new skills, make new connections, and take a concentrated focus on their development. • *Performance Management* – Effective performance management includes setting expectations, monitoring performance, providing performance feedback, developing the capacity to perform, rewarding and recognizing good performance, and holding employees accountable for needed improvements
Maintaining Organizational Capacity	• *Knowledge Management* – It is critical for agencies to develop a targeted knowledge management strategy to ensure institutional knowledge is retained and shared among employees. • *Succession Planning* – Succession planning ensures that agencies have a pipeline of capable leaders prepared for advancement that will allow the organization to have smooth leadership transitions .



Metrics to Assess Effectiveness

Assessing the effectiveness of reskilling and upskilling efforts should be done at multiple levels. At the lowest level, the effectiveness of individual initiatives should be monitored on an ongoing basis. For example, training programs should be evaluated to address whether they are resulting in learner gains of the needed skill. In addition to monitoring the success of individual programs, organizations should also measure overall changes in their workforce by regularly assessing the extent of their skill gaps. At the highest level, skill gaps can be assessed on a government-wide basis. Identifying the largest and most critical gaps could then help to shape the future direction of priority occupations and skill sets to be addressed by research through the GEAR Center.

Priority Occupations/Skill Sets

As described above, government-wide skill gaps should be regularly assessed to identify priority occupations and skill sets that would result in high ROI research. As an initial starting point, OPM, in partnership with the Chief Human Capital Officers (CHCO) Council identified six priority areas representing skill gaps in high-risk mission critical occupations in the Federal Workforce (https://chcoc.gov/content/closing-skills-gaps-strategy-reporting-and-monitoring).

These areas represent a potential starting place for Government-wide reskilling initiatives that have a high potential payoff and rich opportunity for investment.

Response to Question #8

Given the government's anticipated early focus on how Federally owned data could help transform society and grow the economy, we see opportunities for the GEAR Center to facilitate implementation and testing associated with the Federal Data Strategy, including enterprise data government; access, use, and augmentation; decision making and accountability; and commercialization, innovation, and public use. Below, we provide responses to each question posed in the RFI.

Are there opportunities for the Federal Government to partner with the private sector to improve data architecture/taxonomy, and data quality/hygiene?

We see the following opportunities for Federal and private sector partnership in this area:

- **Continuing to build on the National Information Exchange Model (NIEM).** NIEM works to create a common vocabulary to enable information exchange across public and private organizations. As documented on their success stories page, public and private organizations are already using this exchange to facilitate information and data exchange.
- **Leveraging best practices from the state level and applying to Federal Government.** In the Health Information Exchange (HIE) space, some state-level HIE organizations have partnered with state-level entities to facilitate the movement of clinical information among different health care systems and to facilitate analyses of population health. For instance, in Indiana, the non-profit HealthBridge was created to facilitate the sharing of health information in Indiana among private and public health care facilities. The Arkansas Center for Health Improvement, a health policy center, is working to centralize datasets to improve policy decisions and inform research. Select cities across the country are also working to open their data to the public, which facilitates use and input by private sector organizations. For instance, the City of Chicago's Open Data movement opens data to the public and to developers who can provide feedback on use of the datasets and any issues in the data architecture or taxonomy. For instance, see this posting about updating crime records that were missing location data. Other states are implementing similar efforts when it comes to opening data to the public, such as California's Opioid Surveillance Dashboard, created as part of a CDC grant.
- **Using the "bug bounty" program but applying to data-related challenges.** Recently, the government used a "bug bounty" program to find security vulnerabilities in its Defense Travel System. Similar programs have been used by the Air Force to allow hackers to find and receive payment for finding vulnerabilities. A similar program could be used to improve data architecture/taxonomy and data quality/hygiene whereby data "bugs" are identified by "hackers" or "data wonks" in the community.

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?

Many private entities are beginning to realize the value of the data they may collect as a byproduct of other activities and are beginning to commercialize this data and sell it to other organizations, both public and private, who need robust datasets for research purposes. For instance, Strava and Waze are both doing this with transportation data to support city and regional planning efforts. Higi is doing so with health data collected at thousands of health stations around the country; their data can be used to look at population health, disease surveillance, and the health impacts of emergencies to facilitate resource allocation by public health departments. REMI is an organization that similarly provides deidentified, robust datasets for the purposes of economic modeling. In fact, ICF was asked by NOAA to evaluate the impact

of commercializing NOAA's data and how REMI could be used to improve weather forecasting, thereby enabling improved emergency preparedness and minimal interruptions to energy and infrastructure efforts (e.g., offshore oil platforms). Kaggle houses over 10,000 publicly accessible databases, and invites individuals from the general public to use these datasets to solve a variety problems.

In addition to our work with REMI, ICF developed a meta-database tool of data sources to be used by Federal economists when conducting regulatory analyses. This database includes descriptive information about a wide variety of data sources and links to these data sources where staff can obtain more detailed information related to specific regulatory analyses. The database includes prepopulated information that has been used in past regulatory analyses, as well as new sources identified through ICF's meta-analysis, to establish a repository of institutional knowledge about information sources, and to provide easier access to information sources for future regulatory analyses. The meta-database tool, developed in MS Access, allows the user to: (1) enter/view/edit information on data sources, (2) search for data sources, (3) generate reports, (4) export information into other formats (e.g., MS Excel, MS Word), and (5) conduct database administrative functions.

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.)?

In examining the Federal budget and cost categories, healthcare represents a significant portion of the government's spend each year. Therefore, we see Medicare and Medicaid data as being a dataset that could be further leveraged by all entities, public and private, to help reduce costs and spur innovation. This dataset can also be used to explore the health impacts of disasters, (e.g., to examine the impact over time of major disasters), so as to better target and deploy resources to mitigate those effects over time.

Census data could also be further leveraged to contribute to the greater good. While many organizations currently use Census data, it is not available in a format that is widely usable, except by specialized experts. Significant value could be achieved if the data could be more shareable and accessible by those outside the research community, such as businesses or the American public.

Through the support of recent multiple United States Coast Guard regulatory projects, ICF has developed a familiarity with the Marine Information for Safety and Law Enforcement (MISLE) database and believes it could be leveraged for broader analyses than it is currently. Within the last year, ICF used the MISLE database to develop a methodology for extrapolating historical vessel-related injuries and fatalities to predict the frequency and severity of future worst-case scenarios. In a separate project, ICF supported the establishment of a methodology for the valuation of maritime near-misses using a variety of metrics extracted from MISLE. In addition, ICF conducted a retrospective review of the Automatic Identification System (AIS) using pre-rule and post-rule MISLE data combined with outside data sources.

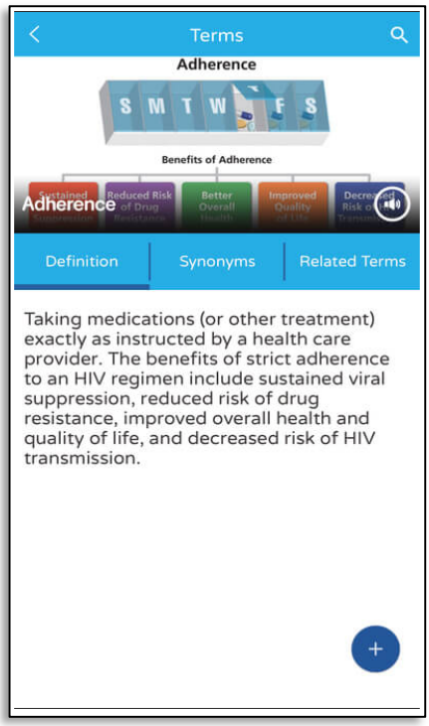
In addition to the above-referenced data sets, others that could be leveraged for social good could be explored as the Center is established.

V. Qualifications

Since 1969, ICF has served major corporations, government at all levels, and multinational institutions. Drawing upon distinguished professionals, innovative analytics, and extensive industry knowledge, ICF develops solutions to complex problems across a broad range of industries, such as transportation, defense, homeland security, environment, and social programs. We bring over 25 years of experience in data analytics, organizational behavior, workforce development, and user-centered design. Additionally, ICF has extensive experience effectively conducting projects through public-private partnerships.

For example, in 2015, ICF won a competition through Challenge.gov to design and deliver a learning program for Federal contracting professionals who are acquiring digital services. ICF partnered with the U.S. Digital Service (USDS) and the Office of Federal Procurement Policy (OFPP) to build and test two pilot versions of this learning program from 2015-2017. This involved identifying the key knowledge and skills required to successfully acquire digital services and crafting a learning program to upskill acquisition professionals. The government created a certification that is specific to these knowledge and skills, known as the Federal Acquisition Certification in Contracting Core-Plus Specialization in Digital Services (FAC-C-DS). Vendors can become certified to deliver the Digital IT Acquisition Professional (DITAP) program in support of the FAC-C-DS requirements, which has created a new market and way of offering training and learning to the government. All learning content that was developed during the pilots is also now open sourced for all other vendors to use, adapt, and improve on over time. ICF is currently offering the first government-certified DITAP program.

ICF has also partnered with several organizations to advance data analytics, including data commercialization, integration, and architecture. For example, via the Office of the Inspector General (OIG) at the U.S Department of Health and Human Services (HHS), ICF is developing predictive analytics capabilities using the Integrated Data Repository (IDR), to recommend, evaluate, and counter Medicare Part C fraud. This effort involves developing two analytics tools using SAS and Python as well as building a Central Hub that will allow all of OIG to access the two tools from a single portal. Additionally, ICF is currently partnering with AIDSInfo.gov to better connect citizens to information and resources for AIDS prevention and treatment. This involved the creation of a mobile app to disseminate AIDS-related terminology and explanations in common, easily understandable language, as displayed on the right.



Source: https://aidsinfo.nih.gov/apps

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