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Response to the Office of Management and Budget, Executive Office of the President Establishing a Government Effectiveness Advanced Research (GEAR) Center

Submitted via e-mail at *performance@omb.eop.gov* to:

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RTI International appreciates the opportunity to provide input to the Office of Management and Budget (OMB) on establishing a Government Effectiveness Advanced Research (GEAR) Center. RTI, also known as the Research Triangle Institute, is a non-profit, independent research institution located in Research Triangle Park, North Carolina.[1] Since its founding in 1958, RTI has provided research services to federal government and other clients to answer questions that demand an objective and multidisciplinary approach—one that integrates expertise across the social and laboratory sciences, engineering, and international development. We have over 5,000 employees conducting projects in over 50 countries.

We lead or participate in many collaborations and consortia to address issues in government workforce development and data analytics. For example, RTI leads the Forensic Technology Center of Excellence (http://www.forensiccoe.org) funded by the National Institute of Justice, combining university researchers and private companies in testing new forensic techniques and methods and then training law enforcement professionals in federal, state and local government on the proper use of those emerging technologies. Our Center for Data Science worked with police departments to create CFS Analytics, a system that analyses 911 calls for service to improve resource deployment.[2] RTI's Center for Health Data Analytics works with communities, providers, and payors to reveal new ways to improve public health by processing data provided by the Centers for Medicare and Medicaid Services (CMS). Through these and other projects, we have partnered with research universities, corporations, state and local governments, professional societies, and with overseas governments and nongovernmental organizations.

[1] See http://www.rti.org for a full organizational profile.
[2] See http://www.rti.org/impact/cfs-analytics.

Response to Questions

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?***

One of the greatest opportunities for the GEAR Center is to enhance the flow of "translational" research in policy and government operations from investigators to practitioners. From prior work, we have identified three key barriers that impede the ability of members of the government workforce from taking advantage of research findings. The GEAR Center's strategic approach and its objectives should aim to reduce these barriers and improve the flow of knowledge into application.

1. Compared to other sectors of the economy, there is a lower volume of rigorous academic work on the functioning and needs of the public sector and especially the federal government. For example, on behalf of the National Institute of Standards and Technology (NIST), RTI is performing a study on federal laboratory technology transfers; NIST was motivated to support this work because most studies of technology transfer focus on transfers of technology from universities to industry, rather than transfers from government.

2. Most extant academic research on public sector issues is written for consumption by academic readers, not practitioners. Senior executives and managers in government agencies are not inclined to read peer-reviewed journals in public policy and public administration. They would prefer to learn about research results through other media (websites, video, or discussions) with content written to be more directly actionable. In Washington, DC, think tanks and policy institutes have developed skills in customizing policy research publications to appeal to practitioner audiences. Due to their funding and nature, these organizations may be suspected of having a more partisan motivation, and their research is less likely to go through evaluation by peer review or similar methods.

3. Academic research relevant to federal agencies may not focus on those issues most important to agency decision-makers. This problem was discussed at a 2015 colloquium in DC organized by the Association for Public Policy and Management, and a 2016 workshop funded by the National Science Foundation's Program in the Science of Science and Innovation Policy.[3] These discussions confirmed that investigator-driven research focuses on topics that researchers find intellectually rewarding, and for which data are readily available. However, these topics are not necessarily aligned with agency interests. When an agency commission specific research to support its program design and evaluation, the findings may not be generalizable to other agencies and programs, and also may not be published for general circulation. RTI is aware of this phenomenon from both points of view.

[3] See Association for Public Policy and Management (APPAM) (2015). Spring 2015 Conference: How Policymakers Use APPAM Member Research. Accessed 8 March 2016 at http://www.appam.org/events/spring-conference/2015-spring-conference/ and Alexander, J., Hart, D.M., and Hill, C. T. (2016) *Enhancing the Usefulness of Science of Science and Innovation Policy Research: An Agenda-Setting Workshop*, George Mason University, Arlington, VA. Funded under NSF Grant No. 1547029. Available at http://davidhart.gmu.edu/wp-content/uploads/2011/05/GMU-SRI-SciSIP-workshop-report-FINAL.pdf

The GEAR Center can reduce the barriers that prevent federal government leaders from leveraging relevant research by (a) creating a venue where agency leaders and researchers can meet to discuss topics of interest and formulate research agendas specifically useful for the federal government, (b) funding research in areas that meet a critical need for government operations, and (c) providing incentives to funded researchers to make their research results more easily discoverable and digestible by federal agencies.

A number of esteemed organizations conduct studies evaluating federal government policies and operations, such as the National Academy of Public Administration; the National Academies of Science, Engineering, and Medicine; and federally-funded research and development centers (FFRDCs), such as the RAND Corporation, MITRE Corporation, and the Institute for Defense Analyses. The GEAR Center should differentiate itself from such comparable organizations in three ways:

Customer focus: The GEAR Center can clearly communicate the needs of government research "customers" or end-users to the research community, and help to direct researchers to focus on those needs. This differentiates it from more general funding sources for policy-related research, such as the National Science Foundation or the mission agencies, which tend to let investigators choose topics without requiring buy-in from agency representatives. By contrast, the GEAR Center could convene and host regular meetings and other collaboration opportunities where government managers and researchers are given incentives to interact directly.

Application and implementation: While there is intense interest in "evidence-based policy" in the federal government, in reality, many initiatives supported by strong evidence cannot be readily implemented by agencies due to budgetary, statutory, and/or political constraints. Academic researchers may not appreciate such "real-world" factors when designing research studies or deriving findings. The GEAR Center can ensure that the policy research that it sponsors and encourages is truly applied in focus, especially by helping researchers understand conditions in agencies and gain access to agency-held data.

Timeliness and responsiveness: The issue with many efforts by advisory research organizations, like the National Academies and university research centers, is that their studies tend to take a long period of time to complete, and they are constrained by their internal processes and may not always respond to the immediate needs of agency sponsors. The GEAR Center can focus instead on shorter-term studies that are still rigorous, producing findings in a more usable timeframe and requiring research outputs that are more readily accessible and usable by agencies.

To establish and maintain an effective and useful agenda for the GEAR Center's activities, it must be able to engage agency representatives frequently and directly, convene regular meetings between research performers and target consumers in government, and be sufficiently nimble and agile to change focus as required by circumstances and developments in government.

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?

In keeping with the apparent interest in minimizing its overhead costs, and responding to the need for direct involvement of government, the GEAR Center would function best as a federally-supported center operated under contract or cooperative agreement by a nonprofit organization. The operator's nonprofit status would reinforce the non-partisan, objective, and public interest character of the GEAR Center. We do not believe that it would be optimal to place the Center inside a private firm (similar to IBM's Center for the Business of Government) because such an arrangement would invite charges that it is serving the business interests of that company. Nor would a university-based center be optimal, because such a model would require staffing the Center with faculty researchers, who are not as likely to focus on applied research topics that are directly relevant to government needs.

The Center will need permanent staff, and therefore a physical location and host institution. An arrangement similar to a FFRDC Study and Analysis Center might be appropriate.[4] However, most FFRDCs hire a permanent research staff that must be kept busy and employed, leading such centers to spend resources on business development. The GEAR Center could instead function as an extramural research program—essentially, as a conduit to collect funding from government agencies, companies, foundations, and other contributors—and then distribute the funds as research grants and contracts per the Center's strategic plan and research agenda. The permanent staff would consist primarily of administrative personnel (for tracking and reporting flows of funding), program managers (to oversee the grantees and contractors), and top leadership for strategic direction and stakeholder management.

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?***

Aligned with the approach we outlined above, we suggest that the GEAR Center should be a small FFRDC or implementation unit inside a nonprofit organization. While initial funding may come from a particular source, the Center should have the ability to collect funds from multiple agencies. The GEAR Center have an independent governing board consisting of representatives from these sponsoring agencies, and possibly representatives from qualified private sector organizations, retired federal employees, and leaders in policy research. The board would have ultimate authority over the GEAR Center strategic planning and research agenda; the government representation on the board would help maintain a focus on federal priorities and needs. This could be modeled after the structure of the Industry/University Cooperative Research Centers (IUCRCs) funded by the National Science Foundation. One relevant example is the Center for Innovation Management Studies (CIMS) at North Carolina State University, which received initial funding as an IUCRC.[5]

The GEAR Center's "shareholders" could be individual federal agencies (which would make a monetary contribution to the Center's funding) as well as private firms, foundations, and other sponsors. In exchange for monetary support, those shareholders would gain direct involvement in the Center's strategic planning, input into project selection, and a role in evaluating Center performance. A membership model also means that each "shareholder" contributes a relatively modest amount of funding, but gains the full potential benefits of the research conducted by the Center. This mitigates any upfront risk to each shareholder agency or member organization.

In addition, as a nonprofit, the staff of the GEAR Center would be eligible to serve as "rotators" within government agencies under the Intergovernmental Personnel Act.[6] This would allow staff to be immersed in the operating environment of government agencies and provide first-hand experience in federal service, which they could then bring back to inform their work within the GEAR Center.

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[4] See https://www.nsf.gov/statistics/ffrdclist/#Study_and_analysis_centers for a list of existing centers.

[5] See https://cims.ncsu.edu/ for more information.

[6] For detail on IPA exchanges, see Howieson, S.V., Yglesias, E., Blazek, S.L., and Tran, E.D. (2013). *Federal Personnel Exchange Mechanisms.* IDA Document D-4906, Science & Technology Policy Institute, Washington, DC.

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?***

The most appropriate structure for the GEAR Center would be a public-private consortium funded initially with a "seed" investment by one or a few federal agencies, but open to members from a variety of member organizations. This model has been used successfully in a number of instances:

The ***Engineering Research Centers (ERC)*** funded by the National Science Foundation are research consortia focused on applied topics in science and technology. To reduce the upfront cost, this model involves federal funding over a number of years, but with the core federal funding provided at a decreasing rate over time until the Center is entirely self-sufficient, relying on private member contributions and project-based funding.

Another NSF example is the aforementioned ***IUCRC program***, which has now funded over 100 smaller-scale university-based research centers that engage with industry and other members. These are much smaller than the ERCs, but operate through cooperative government and leadership. The IUCRCs have been evaluated extensively, providing possible guidance for the operation of the GEAR Center.[7]

The institutes in the ***National Network for Manufacturing Innovation*** are large consortia established with funding from a federal agency (NIST, DOE, or the Department of Defense).[8] The federal government provides up-front "seed" money to establish the center at a nonprofit implementation organization, and the organization then is responsible for recruiting additional sponsors and research partners. Examples include the Lightweight Innovations for Tomorrow institute focused on advanced metals manufacturing and the Digital Manufacturing and Design Innovation Institute creating advanced methods, tools, and processes for manufacturing that integrates the Internet of Things, data analytics, e-commerce, and virtual design. Unlike ERCs and IUCRCs, these institutes primarily operate as research funding organizations, taking the resources contributed by members, establishing technology roadmaps and research agendas for their domains, and supporting both internal and external research teams to address the issue areas designated in their roadmaps.

The centers within these template programs described here have been evaluated by their sponsoring agencies; the evaluation reports provide a broad knowledgebase on the advantages and disadvantages of each particular implementation of this model. Those reports also provide insight into how such consortia should best be established to optimize management of center operations, relationships among shareholders and stakeholders, and recruitment of leaders and program managers.

[7] See https://projects.ncsu.edu/iucrc/.
[8] See https://www.manufacturingusa.com/.

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?***

As noted above, operating the GEAR Center as a FFRDC or under a cooperative agreement would be the most efficient model. The actual distribution of funds would be the responsibility of the Center, which could design those programs to fit particular research needs. Prize competitions, for example, are best used when they address a problem with fairly clear parameters, where participants can formulate discrete and concrete solutions, and where even those participants who do not win the prize see some benefit from participating (in terms of prestige, marketing, recruiting, etc.). It is unlikely that all issues to be addressed by the GEAR Center would fit the profile of a prize competition. Therefore, the GEAR Center should use a range of funding tools, from grants to contracts to prizes to informal partnerships, as appropriate.

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?***

We recommend that the GEAR Center be funded initially through federal funds from a particular agency. This funding reduces the upfront risk to the operator of the Center, demonstrates federal commitment to the effort, and also conveys the "brand" of federal involvement to help recruit co-sponsors and research performers. To ensure that the Center is focused on issues relevant to more than one agency, other agencies should be allowed to contribute either discrete or recurring funding to become "shareholders" in the Center. This would ensure that federal agencies have "skin in the game"—by putting its own funding into use, each agency would have an incentive to remain active participants in the GEAR Center's operations, to take advantage of the research findings and other outputs from the Center, and to recruit additional co-sponsors to help mitigate the burden on each shareholder agency.

Another consideration is how the GEAR Center can develop efficient, flexible, and innovative mechanisms for engaging external researchers and federal agency stakeholders and shareholders in projects. Housing the GEAR Center in an external nonprofit should free the Center from the rigid constraints of federal procurement regulation, grantmaking processes, and onerous audit requirements when designing its own funding mechanisms. Recent developments in federal agencies provide promising models for those mechanisms. In particular, we point to the NTIS Joint Venture Partnership (JVP) program as a promising approach. Under the JVP, firms with particular capabilities in data systems and analysis can work with NTIS and NTIS client agencies (like the Bureau of the Census) to design new projects rapidly and iteratively, and then develop and prototype systems that meet specific needs. The JVP illustrates some of the attributes that should be reflected in the GEAR Center: agile management, integrated collaboration between federal agencies and performers, and a fee-for-service model where the GEAR Center facilitates partnerships based on the demand from agencies.[9]

[9] See https://www.ntis.gov/newsroom/2016/06/20/commerce-secretary-appoints-avi-bender/

Anticipated Early Focus Areas:

7. What models, approaches, and opportunities should inform an anticipated early focus on reskilling and upskilling Federal employees? For each question, 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.***

RTI, in particular through its Education and Workforce Development research unit, has conducted research on general issues related to skill development and reskilling for current and prospective workers, including studies focused specifically on segments of the federal workforce. The federal government, like many organizations today, operates increasingly in a broad and varied set of situations, cultures, and circumstances. To be successful, it must be able to anticipate, adapt quickly, and respond to rapid changes that occur around the globe. In addition, like many workforces in developed countries, the US has a large contingent of baby boomers, who will continue to reach retirement age over the next several decades, and the federal government has a large share of this age group in its current workforce. That bring challenges and opportunities: a need to capture the important institutional knowledge these workers possess before they leave (which is a core component of an organization's overall agility, i.e., stability and resiliency in the face of change), and opportunities to build and manage a multi-generational workforce in ways that will lead to increased agility and productivity.

RTI has deep expertise in helping to prepare the federal workforce of tomorrow to meet exciting new challenges and working to develop effective and efficient tools, processes, and organizational structures to improve workforce productivity. Our extant research and subject matter experts could be deployed to address the key challenges of renewing the workforce in this period of mass retirement, and reskilling existing employees to adapt to new technologies, administrative processes, and mission requirements. Two of our projects in particular could provide relevant guidance:

Research on the Development of Behavioral, Economic, and Social Science Subject Matter Expert (SME) Capability across DHS Science &Technology (2016 to date). This project establishes a behavioral, economic, and social science support contract for Department of Homeland Security (DHS) Science and Technology Directorate (S&T) projects identified as having strategic priority or an external stakeholder's operational need. To date, organizational science support activities have been provided to DHS agencies such as Transportation Security Administration, Customs and Border Protection, First Responders, and the Federal Emergency Management Agency.

Development of an Organizational Agility Toolkit (2014 to 2016). A significant consequence of today's dynamic and ever-changing business environment is that organizations must demonstrate the flexibility and agility to adapt; doing so will help them find new and creative solutions to problems, overcome obstacles more quickly, improve their current processes, and increase innovation overall. With support

from an RTI Internal Research and Development (IR&D) grant, the project included a detailed review of the available literatures relevant to individual and organizational adaptability and agility, and development of an instrument to measure important dimensions of organizational agility. A second phase involved further development of the toolkit, including infographics, and an agility-feedback system for organizations.

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?***

The amount of data collected by federal agencies is vast and includes a wide array of data elements. To promote the use of this data, it would be beneficial to involve the user community more actively in how data is stored, curated and shared. Census data, for example, has an active user community and highly accessible application programming interfaces (APIs) that improve usability and access. This model would be useful across other agencies and should be expanded to integrate private sector involvement as well. Such involvement could include industry working groups that help to define and document accessibility options and data elements that could be included in future data collection efforts. In collaboration with academia and government, these working groups could promote data usage and accessibility across the broad user community. Their efforts could include establishing closer relationships with trade groups, academic research, and R&D efforts within industry. Industry working groups could also help develop processes to improve data quality and determine the future data needs across key stakeholders. Working groups will provide a platform that brings together data consumers and promotes the collaboration of common architectures/taxonomies across stakeholders.

RTI International has implemented a successful working group model within the ***PhenX project*** sponsored by the National Human Genome Research Institute (NHGRI) . PhenX is a high-profile collaborative project driven by the research community involving steering committees and continued development of a standardized tool kit. This toolkit includes standard measures associated protocols and documentation for over 20 broadly defined research domains. The National Institutes of Health (NIH) has utilized PhenX across their studies and continue to look at PhenX as a model for involving the research community. Finding common ground in how data is defined, collected, and managed will provide the needed foundation for the information economy and ensure that industry, government, and academia are involved in this effort.

RTI has extensive experience in generating and maintaining federal data resources. We have fulfilled these responsibilities for survey data under contracts with the National Institute for Drug Abuse, the National Institute of Justice, the Department of Education, and NSF, among others. We also add value and improve the utility of federally-funded data collections by cleansing, engineering, and integrating datasets. Finally we apply innovative methods of statistical analysis and data science to produce insights from data. RTI's efforts in this area are spread across the Institute, with a particular center of excellence located in our Center for Data Science (CDS). CDS deploys approaches informed by new project management and implementation methodologies, such as design thinking, lean and agile development, and rapid prototyping. Our expertise draws heavily on past experience with Big Data, advances in data visualization, text analytics and natural language processing, and open source tools and technology stacks.

Based on our experience, there are several ways that new technologies can be combined with existing and future federal datasets to create platforms on which the public and private sector can build valuable applications and analyses. The key considerations will be how well federal agencies can (a) develop data infrastructures that build in the flexibility and customization necessary to enable innovative solutions, and

(b) foster effective and creative collaborations between federal agencies and researchers in firms, universities, and other external organizations to expand the range of potential applications. Several RTI projects illustrate how new approaches to adding value and technologies to federal datasets, which encourage productive new uses.

Health IT Safety Collaborative Roadmap. Often, planning and preparation are critical to ensuring that federal data are organized, disseminated, and interpreted in ways that maximize its value. RTI partnered with the Office of the National Coordinator for Health Information Technology to help create a Health IT Safety Collaborative roadmap. This roadmap outlines objectives and specific activities to encourage the safe use of health IT, and to inform policies and practices to improve the safety of health care provided to individuals. This collaborative approach to engaging the stakeholder community helps to establish standards of data collection and use that improves data quality and ensures proper use in future applications.

Arrest-Related Deaths Redesign. Working with the Bureau of Justice Statistics, RTI developed the first reliable and accurate process for tracking arrest-related deaths (ARDs) in the United States. The key feature of this study was developing a standardized review of media articles to identify potential Arrest-Related Deaths. To do this, RTI set up a series of media alerts designed to capture the full scope of ARDs as described in periodicals and other media reports. Machine learning classifiers were developed to identify articles that were likely to provide information related to an ARD. These articles were manually reviewed and coded, and this information was used to train logistic regression and decision tree classifiers. Following the media review, RTI surveyed law enforcement agencies and medical examiner/coroners' offices to confirm potential ARDs, identify ARDs not found through media review, and report data on the decedents and circumstances surrounding the ARDs.

Our pipeline of online media articles reduced the number of articles needing manual review by over 99%, while retaining over 95% of decedents (high accuracy rate), allowing RTI to produce a successful proof-of-concept for the first federally sponsored program counting the number of arrest-related deaths in the United States using open-source data. In December 2016, BJS published our technical report. This project has been featured in numerous media outlets, including The Guardian (2015 and 2016) and fivethirtyeight.com, who also included it among the Best Data Stories of 2016. The system enabled criminal justice researchers and law enforcement agencies to better understand the issue and communicate with policy makers and the public. Policy makers and law enforcement agencies also used the information to develop new policies and practices reducing or eliminating deaths during the arrest process.

HRSA Dashboard. For the Health Resources and Services Administration, RTI created the Health Center Patient Survey Dashboard. The dashboard is an interactive, user-friendly tool that health centers and stakeholders can use to explore the data from the Health Center Patient Survey. The survey itself collects robust patient-level data on how health centers funded under Section 330 of the Public Health Service Act provide access to primary and preventive health care. The Dashboard provides a quick glimpse into the survey data, supports some basic analysis, and gives insights into possible areas for quality improvement or future research. We used JavaScript using D3 to create the Dashboard graphics, and a custom library for computing survey estimates reflecting the complex design. This exemplifies how external innovators can combine new technologies and methods of data management and analysis to deliver valuable insights to the general population.

- ***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?***

There is not a one-size-fits-all approach to economic models in this area. Important factors to consider include levels of access, security, and privacy. One model is to emulate services such as Google and Facebook, which provide a service at little to no cost as long as users provide information about themselves (data exchange). There may be opportunities to work with industry to collect data from the private sector for inclusion in an aggregate dataset on the health and activity within communities. Such information is already reported within the Beige Book, which is a snapshot of activity within Federal Reserve districts, but that resource does not currently include detailed datasets or tables that could be analyzed and modeled. The Beige Book and similar resources could be enhanced and updated by the frequent submission of more detailed, standardized, and localized data. With more localized data available and accessible, communities could monitor economic activity at a much granular level. This data—combined with regional, state, and national level data—could be used to inform decisions on employment, health, and other factors related to quality of life within these communities.

Reliably collecting this type of data would be difficult and providing it within a timely manner would be even more challenging. However, providing reports and other localized data that are easy to access and use could promote a higher level of data producer response and provide a highly detailed level of information. Whatever the model, those that provide data must be reassured of the security of their data. Statistical expertise will be needed to properly assess disclosure analysis within small sample sizes. RTI International has developed a wide array of advanced data collection techniques and tools to collect such data and to analyze the collected data. Our experienced survey researchers utilize advanced sampling techniques, mixed-mode survey designs that utilize web and mobile technology to optimize efficient and real time data collection to inform critical policy decisions. The ***Residential Energy Consumption Survey*** (RECS) sponsored by the Energy Information Administration contracts with RTI to implement a wide array of these techniques to collect data on housing units, energy usage patterns and household demographics. These data, combined with data from energy suppliers, provide information that is critical to meeting future energy demand and improving efficiency and building design.

- ***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.)?***

The government should promote the interoperability of the data it collects. The data collected across all agencies and at various levels (state, county, etc.) is frequently siloed and difficult to navigate. RTI is currently working with a consortium of researchers and key stakeholders with the ***NIH Data Commons Pilot*** developing interoperability standards for health-related data. The aim of this Data Commons Pilot is to develop new, cutting-edge methods for storing, sharing, and analyzing NIH derived datasets in the cloud environment. Through these efforts, the consortium will develop best practices, guidelines and standards, and cohesive approaches to common architectures and principles. Encouraging more collaborative efforts across academia, industry, and various levels of government with a focus on harmonizing data and making it easily accessible will promote increased public use of critical data over the course of time, contributing to the greater good. This is no small task. It will take time to get all players on the same page, but in the long run efforts to make more data available more broadly will provide the needed frameworks and infrastructure to incorporate accurate, useful data into a much larger and responsive information economy.