Stakeholder Engagement in Developing the Federal Data Strategy and 2020 Action Plan

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Introduction

The Federal Data Strategy (FDS) is a coordinated and integrated approach to using data to deliver on mission, serve the public, and steward resources while respecting privacy and confidentiality. The strategy has been developed iteratively, built on the expertise and input of those who contributed ideas, examples, comments, and suggestions in response to several requests for stakeholder input. A team of 57 members from across the Federal Government, representing 23 agencies, drafted the FDS and 2020 Action Plan.

As components of the strategy were drafted, the development team actively sought and incorporated feedback from Federal employees and the public through a series of requests for comments and forums for stakeholder input. As a result of this concerted effort to invite and use the input of stakeholders, the first government-wide data strategy and the initial plan for implementation were informed by voices across government, business, academia, and other stakeholder entities.

Stakeholder Engagement Activities

The Principles, Practices, and 2020 Action Plan are designed to leverage government data as a strategic asset. Federal agencies and their employees play a critical role in implementing the strategy to improve the use of data for decision-making and accountability for the Federal Government, including for policy-making, innovation, oversight, and learning.

The strategy also seeks to leverage the value of data beyond government. Making government data more accessible and useful for the American public, businesses, researchers, and other stakeholders has wide-ranging benefits. Therefore, the development team prioritized the input of stakeholders by soliciting comments, hosting forums, and conducting outreach through speeches and presentations, website and newsletter publication, and social media tweets.

The strategy was created over the course of three public comment phases. Each phase included a notice and request for public comments published in the Federal Register and elsewhere, a Federal forum, and a public forum.
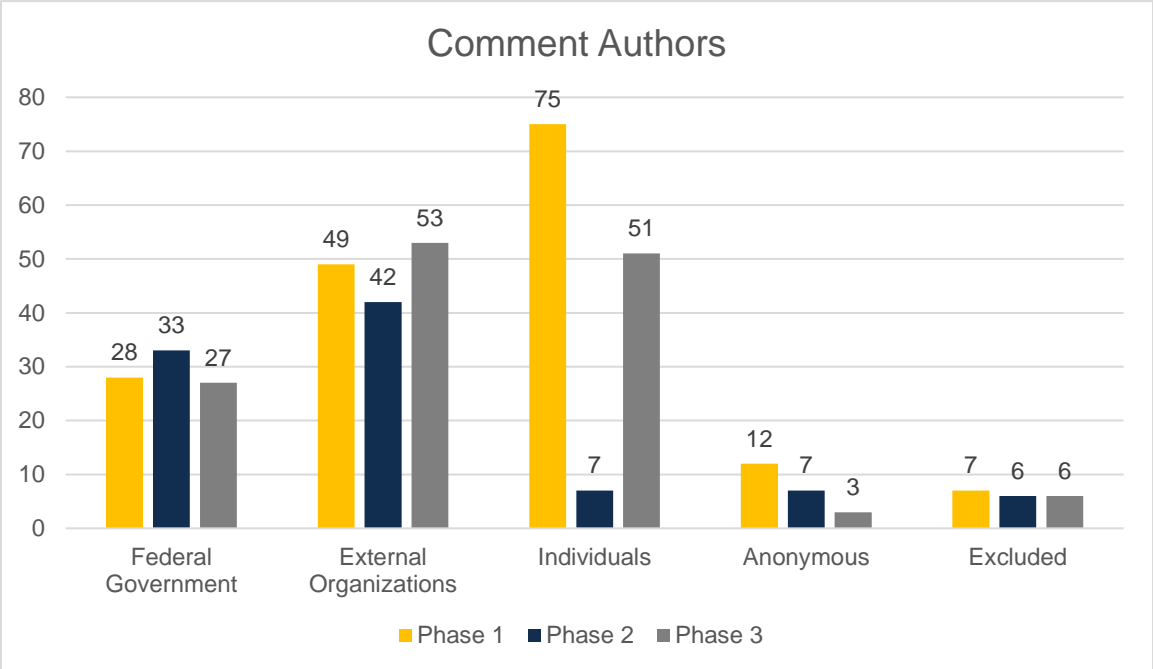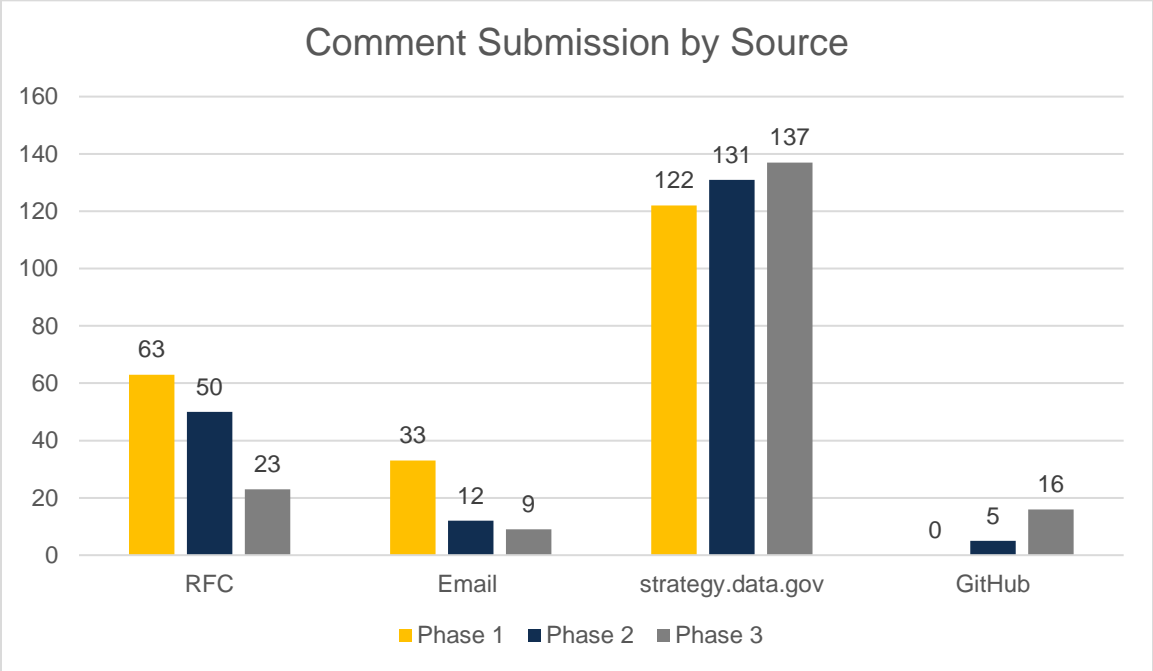
Requests for Comments

The first request for comments was published as a notice in the Federal Register (83 FR 30113) on June 27, 2018. The notice included a set of ten draft principles for a comprehensive data strategy and asked the public to "review and provide feedback on their clarity, appropriateness, completeness, and potential duplications." Comments were also requested on Practices related to key aspects of the FDS, on mechanisms for stakeholder engagement, and on use cases, or real-world examples, that leverage Federal Government data for the benefit of the public.

The second request for comments was published in the Federal Register (83 FR 52379) on October 17, 2018. The notice sought comments on organizing, adding, editing, and removing Practices. Comments were also requested for specific actions associated with the Practices.

The third request for comments was published in the Federal Register (84 FR 25730) on June 4, 2019. The notice sought comments on adding, editing, and removing actions. Comments were also requested to provide information about the implementation resources necessary to ensure success of the actions.

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Over the three phases, the development team received 601 written comment submissions through regulations.gov, email, the website, and GitHub. Most comments were received through the website, strategy.data.gov.

Comment Submission by Source

A grouped bar chart titled "Comment Submission by Source" showing submissions by RFC, Email, strategy.data.gov, and GitHub across Phase 1, Phase 2, and Phase 3.

- RFC: Phase 1 = 63, Phase 2 = 50, Phase 3 = 23
- Email: Phase 1 = 33, Phase 2 = 12, Phase 3 = 9
- strategy.data.gov: Phase 1 = 122, Phase 2 = 131, Phase 3 = 137
- GitHub: Phase 1 = 0, Phase 2 = 5, Phase 3 = 16

Comment Authors

A grouped bar chart titled "Comment Authors" showing counts for Federal Government, External Organizations, Individuals, Anonymous, and Excluded across Phase 1, Phase 2, and Phase 3.

- Federal Government: Phase 1 = 28, Phase 2 = 33, Phase 3 = 27
- External Organizations: Phase 1 = 49, Phase 2 = 42, Phase 3 = 53
- Individuals: Phase 1 = 75, Phase 2 = 7, Phase 3 = 51
- Anonymous: Phase 1 = 12, Phase 2 = 7, Phase 3 = 3
- Excluded: Phase 1 = 7, Phase 2 = 6, Phase 3 = 6

Federal and Public Forums

For each iteration of the public comment periods the development team held a Federal and a public forum. The purpose of the Federal forums was to solicit stakeholder feedback from within

government while the purpose of the public forums was to solicit stakeholder feedback from private industry, non-profits, and the public. A total of six forums were held:

- Federal Forum, July 25, 2018, 18 speakers, 158 attendees
- Public Forum, July 30, 2018, 11 speakers, 58 attendees
- Public Forum, November 8, 2018, 28 speakers, 133 attendees
- Federal Forum, November 25, 2018, 24 speakers, 188 attendees
- Federal Forum, June 25, 2019, 23 speakers, 220 attendees
- Public Forum, July 8, 2019, 43 speakers, 165 attendees

In total there were 147 speakers and 922 attendees at the 6 forums; many stakeholders participated in multiple forums and submitted multiple comments throughout the development of the strategy.
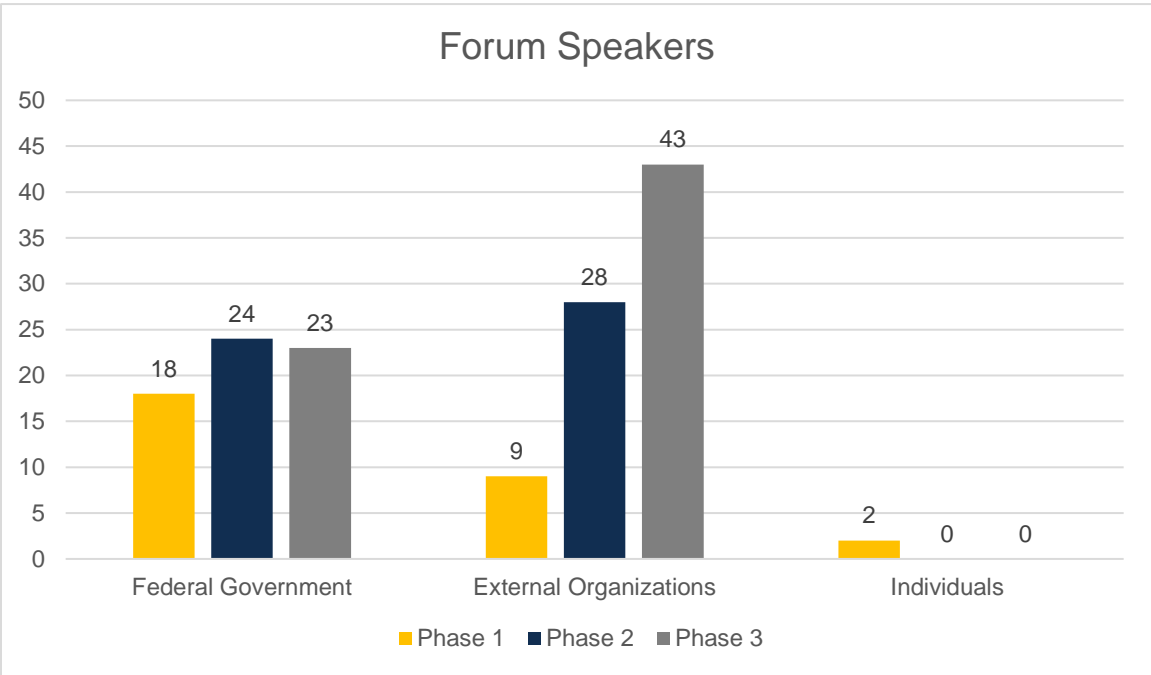
Events

The FDS development team, including agency leads, project managers, and working group members, participated in 87 events hosted by the Federal Government and external organizations, including speaking engagements at conferences and large meetings and informational presentations at smaller meetings. These events allowed the team to communicate developmental milestones for the FDS and to learn more about the perspectives of stakeholders in the larger data community.

Events with Participation by FDS Team

	Phase 1	Phase 2	Phase 3
Federal Government	4	12	15
External Organizations	8	23	25
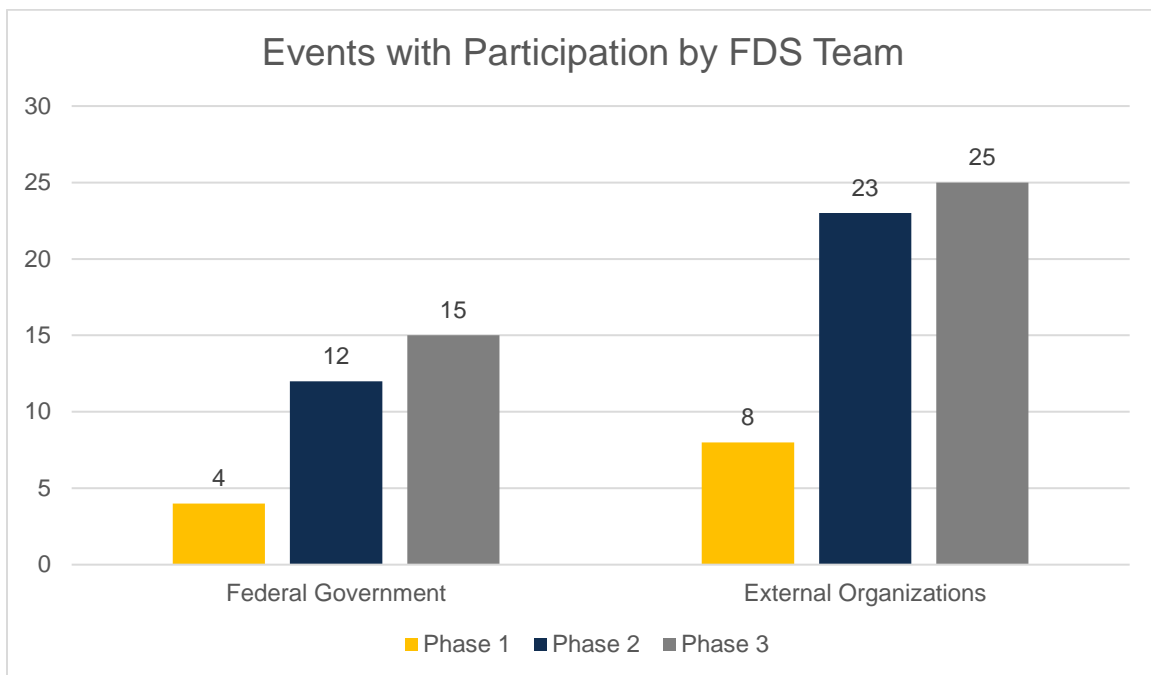
Newsletters

Electronic newsletters were yet another tool used to communicate about the FDS. Newsletters provided background information, important updates, and notifications of open public comment periods.

The team sent a total of 23 newsletters from September 2018 through July 2019 reaching 1,724 people.

Website

The FDS website, managed by GSA Technology and Transformation Services, was a key tool for communication and transparency throughout the development of the strategy. On the site the public could learn about the purpose, origins, and people responsible for implementation. The site was updated throughout development of the strategy.
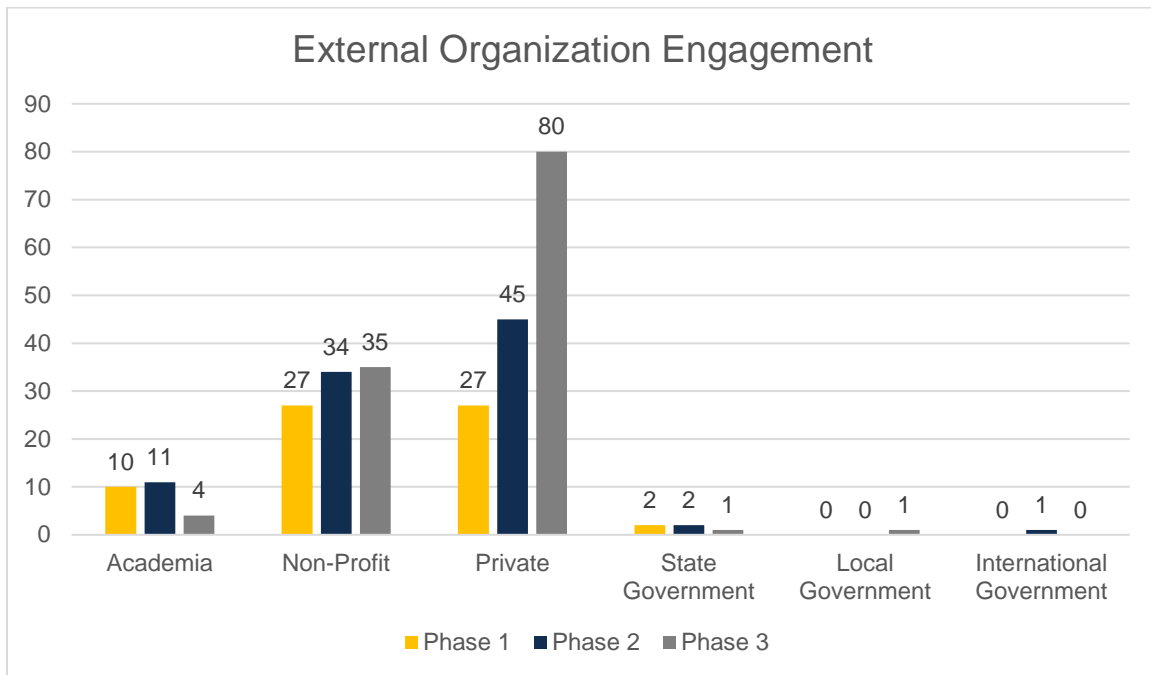
In April 2019, the development team published the first of a series of Proof Points, which highlight the many successes and challenges data innovators face every day, revealing valuable lessons learned to share with data practitioners throughout government.

The website was also a vehicle for public comment submission. During the three open comment periods, the public could review draft products and submit feedback online. This method of providing feedback ended up being the most popular; 65 percent of all comments were submitted through the website.

As development of the strategy progressed, website content grew. The Principles, Practices, and Action Plan were published to the site in draft and then final form. For the sake of transparency, draft products were not removed even after they were revised and updated based on public input.

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Through July 2019 strategy.data.gov had been viewed nearly 170,000 times.

External Organization Engagement

Category	Phase 1	Phase 2	Phase 3
Academia	10	11	4
Non-Profit	27	34	35
Private	27	45	80
State Government	2	2	1
Local Government	0	0	1
International Government	0	1	0

Revising the Draft Principles

On June 27, 2018, the Department of Commerce published a Request for Comments (RFC) in the Federal Register, which included a set of draft Principles for a comprehensive data strategy and asked the public to "review and provide feedback on their clarity, appropriateness, completeness, and potential duplications." The public also submitted comments at strategy.data.gov, the FDS website. The RFC closed on July 27 and the website closed to comments on July 30. This process generated close to 100 comments related to the draft Principles. In response to these comments, the draft Principles were revised to reflect the recommendations and themes expressed in the public comments.

- In general, commenters responded positively to the draft Principles, noting that they were "good, high-level Principles," "clear and well founded," "appropriate and follow the best practice approach for data governance," and "right on target."
- Because several commenters noted the importance of data in a democracy and the natural tension that exists between the need to collect and use data and the need to minimize burden and protect privacy, a new introductory paragraph adapted from OMB Circular A-130 was added to address the value of data as a strategic asset and valuable national resource. It notes that appropriate access to Federal data significantly enhances their value and the return on the nation's investment in their creation.

Stewardship Principles

- Commenters suggested that the label "stewardship" was not descriptive of the Principles included in that category. They noted that the term "stewardship" encompasses Principles listed both under the stewardship and quality categories and includes the responsible use of data. They suggested that the first category was better described as data governance. In response, the category "Stewardship" was

changed to "Ethical Governance," and a Mission Statement was added to keep stewardship as an important higher-order concept included in these Principles.

- A commenter suggested that the Ethics Principle appear first in the list to highlight its importance, and another commenter suggested that this Principle should include the concept of the "public good." In response, "Uphold Ethics" is listed as the first Principle, and "public interest" was changed to "public good."

- Because one commenter suggested alternative adjectives, the phrase "modern security practices," was changed to "sound security practices."

- One commenter suggested linking the concept of transparency to public trust; in response, "to engender public trust" was clarified as the reason for transparency, and "acquiring, using, and disseminating" was simplified and broadened to "purposes and uses."

Quality Principles

- In response to comments noting that the stewardship concept was broader than data governance and management and included aspects of quality and responsible use, this category label was changed from "Quality" to "Conscious Design" to make it more descriptive of the Principles it encompasses.

- Public comment revealed confusion about the intent and focus of the draft Principles on Value and Intentionality, particularly the meaning of "create value." Also, several commenters noted the omission of "fitness for use" as a concept relevant to this category. In response, these two Principles were revised to reflect a focus on harnessing existing data and anticipating future uses, and the order of the Principles was changed to position complementary Principles together. In addition, "fitness for use" was incorporated into the concept of "anticipating future uses."

- Commenters noted that the Relevance Principle should encompass integrity, accuracy, and appropriateness (fitness for use). In response, the description of this Principle was revised to specifically address quality and integrity in the first sentence and add the concepts of "appropriate and accurate" in the second sentence.

Continuous Improvement Principles

- Commenters noted that the Responsiveness Principle should not be limited to data sharing and access. One commenter suggested it should include updating on an on-going basis and another commenter suggested adding a statement about the cyclical nature of gathering and using stakeholder input. Also, a commenter suggested specifically mentioning state and local governments as stakeholders. In response, this Principle description was revised to more broadly encompass data collection, analysis, and dissemination, to include a statement about the cyclical nature of gathering and using stakeholder input, and to not specifically cite state and local governments as stakeholders. Moreover, "Federally-sponsored" was added to the types of data encompassed by the FDS to more specifically address the value of state-collected administrative data used for Federal programs.

- Several commenters said the Best Practices Principle was vague and redundant, so that Principle was deleted.

- One comment on the Learning Principle suggested that ongoing investment in technical infrastructure and human resources should be added to the Responsiveness Principle. Other commenters made general suggestions about the need for resources to use data as an asset. In response, the descriptions were clarified to state that learning with and about data happens "through ongoing investment in data infrastructure and human resources."

- In response to a comment that "practice accountability" doesn't go far enough and that it is important to assign accountability, "assign responsibility" was added to the description of the Accountability Principle.

Revising the Draft Practices

The Practices are intended to guide the development of a comprehensive data strategy that encompasses Federal and Federally-sponsored program, statistical, and mission support data. The FDS team developed the draft Practices by considering concepts reflected in the Fair Information Practice Principles and the statutory requirements in the Paperwork Reduction Act, the E-Government Act, the Privacy Act, the Federal Information Security Modernization Act, the Confidential Information Protection and Statistical Efficiency Act, the Freedom of Information Act, the Information Quality Act, the Federal Records Act, and the Foundations for Evidence-Based Policymaking Act.

On behalf of the FDS team, the Department of Commerce published a RFC in the Federal Register on October 16, 2018. The RFC included a set of six specific questions about the draft Practices and asked the public to provide specific Actions that should be associated with a particular Practice. Comments were also submitted through the FDS website. The RFC closed on November 16, and the website closed to comments on November 23, 2018.

The process generated 198 comments on the draft Practices. There were 95 unique commenters, including authors affiliated with government agencies, academics, private businesses, and individuals. In response to these comments, the draft Practices were revised to reflect suggestions and concerns reflected in the comments.

- Commenters commended the effort to manage government data in a manner that is transparent and accessible and favored the approach to understanding and developing data policies enterprise-wide.

- Many of the commenters noted redundancy, overlap, or lack of clarity in purpose among specific Practices. In response, the FDS team combined and clarified a number of Practices.

- In response to a large number of comments suggesting that the Practices did not adequately prioritize concerns about privacy and confidentiality, the FDS team consulted with government privacy experts to align with existing privacy policy and to further emphasize the importance of privacy as an aspect of data governance.

- Many comments focused on the need for guidance and specific recommendations for data governance and data access and use; the FDS Action Plan is intended to offer such guidance.

- Other key changes:

- o Two new Practices were added based on public comments indicating the need for Practices related to 1) aligning data quality with intended use and 2) providing resources necessary to support the use of data.
- o Several Practices were revised in response to comments indicating that information was missing or unclear.
- o Language was streamlined and made more active to improve clarity.
- o The draft Practices had been grouped according to five broad objectives, however, after feedback from stakeholders, the FDS team simplified the organization of the final Practices into three categories: Building a Culture that Values Data and Promotes Public Use; Governing, Managing, and Protecting Data; and Promoting Efficient and Appropriate Data Use.

The following table provides additional detail about how the draft Practices were revised in response to public comment and expert review, including adding new Practices suggested by reviewers; merging Practices where overlap or duplication was identified; and incorporating alternative or additional concepts to improve specific Practices.

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Draft Practice	Final Practice	Rationale for Revision
Building a Culture that Values Data and Promotes Public Use		
Plan for Evidence-Building: Develop and publish learning agendas to strategically plan research, evaluation, and other evidence-building activities over a multi-year period.	**Identify Data Needs to Answer Key Agency Questions:** Use the learning agenda process to identify and prioritize the agency's key questions and the data needed to answer them.	The FDS team and OMB leadership agreed that this Practice should focus on the data needed to answer agency key questions rather than the development of a learning agenda; this was echoed by comments that recommended deleting the draft Practice as it was not a data practice per se.
Assess the Needs of Stakeholders: Routinely engage both internal and external stakeholders throughout the data lifecycle to assess the needs of data consumers and the utility of existing data assets to inform action, drive impact, respond to changing customer needs, advance innovation and commercialization, and meet the needs of the public. **Balance Stakeholder Needs:** Review stakeholder feedback as part of the process for making annual and multi-year planning, programming, budgeting, and execution decisions related to data stewardship and management to incorporate stakeholder needs into government priorities when appropriate and practicable.	**Assess and Balance the Needs of Stakeholders:** Identify and engage stakeholders throughout the data lifecycle to identify stakeholder needs and to incorporate stakeholder feedback into government priorities to maximize entrepreneurship, innovation, scientific discovery, economic growth, and the public good.	The FDS team combined draft Practices 40 and 41 in response to several comments suggesting they be merged.

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Draft Practice	Final Practice	Rationale for Revision
Promote a Culture that Values Data as an Asset: Conduct routine assessments of current organizational practices to identify opportunities to improve the agency's ability to acquire, use, and disseminate data for program, statistical, and mission-support purposes to improve data use and value.	**Champion Data Use:** Leaders set an example, incorporating data in decision-making and targeting resources to maximize the value of data for decision making, accountability, and the public good.	The FDS team revised this Practice to focus on the role of agency leaders in championing data use in response to comments that it wasn't distinct enough from other Practices.
Incorporate Data into Decision-Making: As part of budget, operational, policy, and management processes, identify opportunities to effectively and routinely use data for decision-making and to create a bridge between evaluation, performance, and other activities within agencies.	**Use Data to Guide Decision-Making:** Effectively, routinely, transparently, and appropriately use data in policy, planning, and operations to guide decision making; share the data and analyses behind those decisions.	The FDS team revised this Practice to include the concept of transparency and to add text about the appropriate uses of data in response to comments from privacy experts.
Prepare to Share: Provide encouragement and incentives for agencies to develop a culture in which they are predisposed to share data within and across Federal agencies, as well as with external partners, with proper protections and where relevant and appropriate. Such a culture entails not only an attitudinal shift, but a proactive effort to plan for data sharing throughout every stage of the data lifecycle.	**Prepare to Share:** Assess and proactively address the procedural, regulatory, legal, and cultural barriers to sharing data within and across Federal agencies, as well as with external partners.	The FDS team revised this Practice in response to several comments on the overlap between draft Practice 19 and other draft Practices and the suggestion that this Practice should include a consideration of policy and legal considerations in data sharing.

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Draft Practice	Final Practice	Rationale for Revision
Communicate Insights from Data: Adopt a range of innovative communication tools and techniques to effectively transmit insights from data to a broad set of consumers, both internal and external to the agency.	**Convey Insights from Data:** Use a range of communication tools and techniques to effectively present insights from data to a broad set of audiences.	The FDS team revised this Practice to emphasize use rather than adoption of communication tools and to streamline and clarify the language in response to comments.
Connect Federal Spending to Outcomes: Analyze spending data to align resources with strategic priorities and desired outcomes to enable the public to understand the results of Federal investments and to support informed decision making regarding future investments.	**Increase Accountability of Federal Spending:** Align Federal spending data with performance data to enable the public to understand the results of Federal investments and to support informed decision making.	The FDS team revised this Practice to clarify its focus on financial transparency in response to several comments and input from OMB financial policy officials.
Monitor and Address Public Perceptions: Regularly assess public perceptions, monitoring views of the value, accuracy, and objectivity of Federal data to make strategic improvements and ensure transparency about information policies and practice.	**Monitor and Address Public Perceptions:** Regularly assess and address public confidence in the value, accuracy, objectivity, and privacy protection of Federal data to make strategic improvements, advance agency missions, and improve public messages about planned and potential uses of Federal data.	The FDS team revised this Practice to clarify the call for statistical monitoring of public perceptions of Federal data and for action based on the results because comments indicated this purpose was unclear.

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Draft Practice	Final Practice	Rationale for Revision
Connect Data Functions Across Agencies: Identify, establish, and connect a network of offices responsible for data functions (e.g., data management, analytics, informatics, user support) to ensure prioritization of effective management and customer service governing the use of federal data.	**Connect Data Functions Across Agencies:** Establish Communities of Practice for common agency data functions (e.g., data management, access, analytics, informatics, user support) to promote efficiency, collaboration, and coordination.	The FDS team revised this Practice to clarify in response to comment that it calls for cross-agency Communities of Practice around common data functions.
New	**Provide Resources to Explicitly Leverage Data Assets:** Ensure that sufficient human and fiscal resources are available to support using data for agency decision making and accountability and to spur commercialization, innovation, and public use.	The FDS team added this Practice in response to numerous comments emphasizing the importance of sufficient resources to leverage data assets.
Governing, Managing, and Protecting Data		
Establish Data Governance Structures: Prioritize data governance within Federal agencies by establishing and supporting Data Councils/Boards to coordinate the effective development, management, compliance, and use, and to communicate the value of data assets.	**Prioritize Data Governance:** Ensure there are sufficient authorities, roles, organizational structures, policies, and resources in place to transparently support the management, maintenance, and use of strategic data assets.	The FDS team revised this Practice in response to comment in order to highlight authorities, resources, and transparency and to focus on prioritizing the function of data governance rather than the creation of any particular type of data governance structure.

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Draft Practice	Final Practice	Rationale for Revision
Define Responsibilities for Protecting Confidentiality: Periodically review and revise roles and responsibilities for protecting confidential data and provide resources for training on best practice methods to protect data in order to maintain public trust and safeguard privacy.	**Govern Data to Protect Confidentiality and Privacy:** Ensure there are sufficient authorities, roles, organizational structures, policies, and resources in place to provide appropriate access to confidential data and maintain public trust and safeguard privacy.	The FDS team revised this Practice to make it parallel to the more general one on data governance and, in response to comments, to emphasize the importance of protecting privacy and confidentiality as part of the governance process and structure.
Prioritize Data Security: Establish priorities to weave data-centric security into every system that is refreshed, architected, or replaced to address current and emerging threats. **Evolve Data Security:** Continually foster innovation in data security to ensure quality assurance, cost savings, and security optimization.	**Protect Data Integrity:** Emphasize state-of-the-art data security in Information Technology security practices for every system that is refreshed, architected, or replaced to address current and emerging threats; foster innovation and leverage new technologies to maintain protection.	The FDS team revised this Practice in response to several comments on the overlap and lack of clear distinction among draft Practices 14, 15, 16, and 17. This Practice was rewritten to emphasize the need for security practices to stay up to date with current and emerging threats to protect data integrity.
Preserve Data Integrity: Convey data such that their veracity is knowable to users wherever they are found.	**Convey Data Authenticity:** Disseminate data sets such that their authenticity is discoverable and verifiable by users throughout the information lifecycle, consistent with open data practice, and encourage appropriate attribution from users.	The FDS team revised this Practice in response to several comments on the overlap and lack of clear distinction among draft Practices 14, 15, 16, and 17. This Practice was rewritten to emphasize the point made in public comment about assuring users of data integrity in terms of believability. The revised Practice also includes the goal of having data users attribute their use of Federal data assets.

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Draft Practice	Final Practice	Rationale for Revision
Assess Data Maturity: Conduct and publish periodic assessments of Federal data set and stewardship maturity to identify strategic opportunities to efficiently improve data set quality and value.	**Assess Maturity:** Evaluate the maturity of all aspects of agency data capabilities to inform priorities for strategic resource investment.	The FDS team broadened this Practice to clarify in response to comment that it includes agency data infrastructure as well as data set maturity.
Inventory Data Assets: Maintain an inventory of data assets with sufficient completeness, quality, and metadata to facilitate planning, discovery, access, and use.	**Inventory Data Assets:** Maintain an inventory of data assets with sufficient completeness, quality, and metadata to facilitate discovery and collaboration in support of informing key agency questions and meeting stakeholder needs.	This FDS team revised this Practice to be explicit in response to comments that inventories need to both inform agency key questions and meet stakeholder needs.
Identify High-Value and Authoritative Data Assets: Assign value and cost to data assets based on usefulness, applicable law, regulation, policy, and operational guidance to appropriately prioritize and document stewardship and resource decisions. **Align Resources to Value and Authority:** Periodically review the alignment of resources to the value and authority of data sets to promote consistency and fairness. **Manage High-Value and Authoritative Data Assets:** Periodically review high-value and authoritative data assets to identify and document opportunities to improve data management systems and procedures and ensure quality and integrity.	**Recognize the Value of Data Assets:** Assign value to data assets based on maturity, key agency questions, stakeholder feedback, and applicable law and regulation to appropriately prioritize and document resource decisions.	The FDS team merged draft Practices 3, 4, and 5 in response to several comments on their overlap, to be explicit about inputs to the valuation, and to emphasize the role of the valuation in setting priorities.

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Draft Practice	Final Practice	Rationale for Revision
Manage with a Long View: Include data investments in annual capital planning processes and associated guidance to ensure taxpayer dollars are being used efficiently to leverage data as a strategic long-term asset.	**Manage with a Long View:** Include data investments in annual capital planning processes and associated guidance to ensure appropriated funds are being used efficiently to leverage data as a strategic long-term asset.	The FDS team revised this Practice to specify its application to appropriated funds.
Publish Data Documentation: Publish comprehensive data documentation in publicly accessible digital repositories to facilitate discovery, collaboration, access, and use, and to ensure traceability.	**Maintain Data Documentation:** Store up-to-date and comprehensive data documentation in accessible repositories to facilitate use and document quality, utility, and provenance in support of informing key agency questions and meeting stakeholder needs.	The FDS team revised this Practice in response to comments in order to emphasize that data documentation must not only be published but maintained, to clarify that the Practice pertains to all data assets (not just "public" ones), and to state the motivation of informing agency key questions and meeting stakeholder needs.
Leverage Data Standards: Periodically review and optimize the use, adoption, and creation of data standards within relevant communities of interest to identify opportunities to maximize Federal data use, access, sharing, and interoperability.	**Leverage Data Standards:** Adopt or adapt, create if needed, and implement data standards within relevant communities of interest to maximize data quality and facilitate use, access, sharing, and interoperability.	The FDS team revised this Practice in response to comments in order to emphasize considering existing standards before creating new ones and to make the language more active.
Align Contracts with Data Management Requirements: Periodically review the terms and conditions of contracts and other agreements involving the processing, storage, access, transmission, and disposition of Federal data to ensure they are sufficient to meet policy and legal requirements.	**Align Agreements with Data Management Requirements:** Establish terms and conditions for contracts, grants, cooperative agreements, and other agreements that meet data management requirements for processing, storage, access, transmission, and disposition.	The FDS team revised this Practice in response to comments suggesting it be broadened to include more types of agreements and to make the language more active.

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Draft Practice	Final Practice	Rationale for Revision
Recover Allowable Costs: Periodically review Federal data operations costs and user demand to identify cost recovery, shared service, partnership and tiered cost opportunities to support the marginal costs of dissemination, the provision of Federal labor expertise, and/or enhancement of data services to ensure taxpayer funds are appropriately and strategically invested in support of Federal data.	**Identify Opportunities to Overcome Resource Obstacles:** Coordinate with stakeholders to identify mutually-acceptable cost recovery, shared service, or partnership opportunities to enable data access while conserving available resources to meet user demand.	The FDS team broadened this Practice beyond cost recovery to include other strategies for addressing and overcoming resource obstacles.
Allow Amendment: Establish and maintain a process for members of the public to access and amend Federal data about themselves, as appropriate and in accordance with Federal laws, regulations, and policies, in order to promote transparency and to help ensure the integrity of Federal data.	**Allow Amendment:** Establish clear procedures to allow members of the public to access and amend Federal data about themselves, as appropriate and in accordance with Federal laws, regulations, and policies, in order to safeguard privacy, reduce potential harm from inaccurate data, and promote transparency.	The FDS team revised this Practice in consultation with privacy experts to more accurately reflect existing policy and to emphasize the need for clear procedures.
Preserve Federal Data: Preserve Federal data as a national asset by regularly reviewing the need for archiving and disposition and providing resources for preserving data in accordance with applicable law, regulation, policy, approved records retention or disposition schedules, and operational guidance.	**Enhance Data Preservation:** Preserve Federal data in accordance with applicable law, regulation, policy, approved schedules, and mission relevance.	The FDS team revised this Practice to streamline the language and to make it more active.

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Draft Practice	Final Practice	Rationale for Revision
Coordinate Federal Data Assets: Coordinate data assets across Federal agencies to fulfill broader Federal information needs and reduce collection burden. **Share Data Across Agencies:** Facilitate data sharing across Federal agencies to efficiently generate more comprehensive data for improved decision making.	**Coordinate Federal Data Assets:** Coordinate and share data assets across Federal agencies to advance progress on shared and similar objectives, fulfill broader Federal information needs, and reduce collection burden.	The FDS team combined draft Practices 9 and 20 in response to several comments on the overlap between the two and to emphasize the value to agencies of such coordination.
Share Data Between State and Local Governments and Federal Agencies: Facilitate data sharing between state and local governments and the Federal Government, particularly for programs which are Federally-funded and locally-administered, to enable richer analyses for more informed decision making.	**Share Data Between State, Local, and Tribal Governments and Federal Agencies:** Facilitate data sharing between state, local, and tribal governments and the Federal Government, where relevant and appropriate and with proper protections, particularly for programs that are Federally funded and locally administered, to enable richer analyses for more informed decision making.	The FDS team revised this Practice in response to comments suggesting it should include tribal governments and to specify its particular application to Federally-funded and locally-administered programs.

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Draft Practice	Final Practice	Rationale for Revision
Promoting Efficient and Appropriate Data Use		
Increase Staff Capacity for Data Analysis: Enhance the analytic capacity of the Federal workforce by investing in mechanisms to expand staff capacity in data science, program evaluation, and other analytic fields.	**Increase Capacity for Data Management and Analysis:** Educate and empower the Federal workforce by investing in training, tools, communities, and other opportunities to expand capacity for critical data-related activities such as analysis and evaluation, data management, and privacy protection.	The FDS team revised this Practice in response to comments suggesting it should include data-related skills beyond data analysis and to expand the types of investments agencies can use to increase workforce capacity.
New	**Align Quality with Intended Use:** Data likely to inform important public policy or private sector decisions must be of appropriate utility, integrity, and objectivity.	The FDS team added this Practice in response to numerous comments suggesting a specific Practice on data quality.
Focus on End Uses of Data: Design new data collections with the end uses in mind to ensure that the data collected will be of appropriately high quality and meet internal and external stakeholder expectations and needs.	**Design Data for Use and Re-Use:** Design new data collections with the end uses and users in mind to ensure that data are necessary and of high enough quality to meet planned and future agency and stakeholder needs.	The FDS team revised this Practice to include the concept of re-use of data and, in response to comments, to add the need to meet agency as well as stakeholder needs.
Plan Ahead with Informed Consent: Periodically review data collection procedures for opportunities to improve user understanding of potential future uses of data and promote public trust.	**Communicate Planned and Potential Uses of Data:** Review data collection procedures to update and improve how planned and future uses of data are communicated, promoting public trust through transparency.	The FDS team revised this Practice in consultation with privacy experts and to make the Practice inclusive of data types and uses beyond those which require formal informed consent.

Federal Data Strategy – Stakeholder Input

Draft Practice	Final Practice	Rationale for Revision
Explicitly Communicate Allowable Use: Regularly employ, and periodically review mechanisms (such as data licenses applied to Federally-hosted data) to provide clarity about appropriate or inappropriate use, explicitly recognize any applicable intellectual property rights, convey attribution as appropriate or necessary, optimize potential value to industry, and encourage the maximum legal use of all Federally-hosted data, including both protected and open data.	**Explicitly Communicate Allowable Use:** Regularly employ descriptive metadata that provides clarity about access and use restrictions for Federal data, explicitly recognizes and safeguards applicable intellectual property rights, conveys attribution as needed, and optimizes potential value to stakeholders to maximize appropriate legal use.	The FDS team revised this Practice to streamline the language, and, in response to comments, to be explicit about safeguarding intellectual property rights and to expand the value statement beyond industry to all stakeholders.
Improve Secure Data Linkage: Regularly review and adopt evolving capabilities for linking data so that qualified researchers with relevant research questions can access linked data in support of national priorities and agency learning agendas.	**Harness Safe Data Linkage:** Test, review, and deploy data linkage and analysis tools that use secure and privacy-protective technologies to address key agency questions and meet stakeholder needs while protecting privacy.	The FDS team revised this Practice in response to comments to focus more on privacy protection in data linkage and to emphasize its goals of addressing agency key questions and meeting stakeholder needs.

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Promote Wide Access: Promote fair and equitable public access to Federal data through the facilitation and periodic review of many access and dissemination mechanisms and sites, including from both Federal and non-Federal providers, to maximize opportunities to use Federal data. **Maximize Economic Value Through Open Access:** Promote open access to appropriate machine-readable public data and related descriptive information to enable new economic opportunities for the nation through entrepreneurship, innovation, and scientific discovery. **Prevent Monopolization of Federal Data:** Periodically evaluate and regularly monitor how data are released to the public with an eye towards preventing monopolization, to ensure public data is as accessible and usable to as many members of the public as practicable. **Honor Propriety Interests**: Protect proprietary interests related to commercially-licensed information and data to honor business investments and promote economic growth.	**Promote Wide Access:** Promote equitable and appropriate access to data in open, machine-readable form and through multiple mechanisms, including through both Federal and non-Federal providers, to meet stakeholder needs while protecting privacy, confidentiality, and proprietary interests.	The FDS team combined draft Practices 27, 28, 30, and 47 in response to several comments on their overlap and to emphasize the need for open data, multiple access mechanisms, and protection of privacy and confidentiality.

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Draft Practice	Final Practice	Rationale for Revision
Diversify Data Access Methods: Invest in the creation and usability of multiple tiers of access to Federal data by committing Federal resources to making data as open and accessible as possible while protecting confidentiality. **Innovate to Enable Safe Use:** Explore and periodically review methods and technologies that enable tiered access to safeguard data and promote accessibility to relevant stakeholders.	**Diversify Data Access Methods:** Invest in the creation and usability of multiple tiers of access to make data as accessible as possible while minimizing privacy risk and protecting confidentiality.	The FDS team combined draft Practices 13 and 14 in response to several comments on their overlap and to simplify the language and clarify the goal of increasing accessibility while protecting privacy and confidentiality.
Review Data Releases for Disclosure Risk: Regularly conduct and periodically publish reviews of Federal data released to the public to assess and minimize the risk of re-identification consistent with applicable laws and policies to promote transparency and public trust.	**Review Data Releases for Disclosure Risk:** Review Federal data releases to the public to assess and minimize the risk of re-identification, consistent with applicable laws and policies, and publish reviews to promote transparency and public trust.	The FDS team revised this Practice to make the language more active and, in consultation with privacy experts, to indicate it applies to reviews both before and after data release as warranted.

Federal Data Strategy – Stakeholder Input

Draft Practice	Final Practice	Rationale for Revision
Leverage Partnerships: Establish and periodically review public private partnerships, procurement authorities, open data Practices, and workforce strategies that facilitate collaboration and innovation with the private sector to maximize economic opportunities and intellectual value from Federal data. **Innovate with Partners:** Periodically conduct and review the results of competitions and collaborations with commercial, academic, and other partners to create innovative new insights, products and services based on Federal data.	**Leverage Partnerships:** Create and sustain partnerships that facilitate innovation with commercial, academic, and other partners to advance agency mission and maximize economic opportunities, intellectual value, and the public good.	The FDS team combined draft Practices 44 and 46 in response to several comments on their overlap and made the language more active and focused on the goals of partnerships.
Leverage Buying Power: Monitor needs and systematically leverage buying power for private-sector data assets and services to promote efficiency and reduce Federal costs.	**Leverage Buying Power:** Monitor needs and systematically leverage buying power for private-sector data assets, services, and infrastructure to promote efficiency and reduce Federal costs.	The FDS team revised this Practice in response to comments to include infrastructure.
Enable use through data platforms: Facilitate the collaborative use of Federal data on modern cloud computing platforms.	**Leverage Collaborative Computing Platforms:** Periodically review and optimize the use of modern collaborative computing platforms to minimize costs, improve performance, and increase use.	The FDS team revised this Practice in response to comments so as not to refer to a specific technology, such as cloud computing, and to include the motivation for using modern computing platforms.

Federal Data Strategy – Stakeholder Input

Draft Practice	Final Practice	Rationale for Revision
Engage Federal Experts: Establish and periodically review mechanisms for sharing Federal data expertise (including labor, code, and data assets) with industrial, academic, and other data users to promote wider use of Federal data and identify usability improvements to ensure Federal data is serving the public interest to the maximum extent practical.	**Support Federal Stakeholders:** Engage with relevant agencies to share expert knowledge of data assets, promote wider use, improve usability and quality, and meet mission goals.	The FDS team split draft Practice 45 into two separate Practices; this one focuses on the need to engage with and support Federal stakeholders.
Engage Federal Experts: Establish and periodically review mechanisms for the sharing Federal data expertise (including labor, code, and data assets) with industrial, academic, and other data users to promote wider use of Federal data and identify usability improvements to ensure Federal data is serving the public interest to the maximum extent practical.	**Support Non-Federal Stakeholders:** Engage with industry, academic, and other non-Federal users of data to share expert knowledge of data assets, promote wider use, improve usability and quality, and advance innovation and commercialization.	The FDS team split draft Practice 45 into two separate Practices; this one focuses on the need to engage with and support non-Federal stakeholders.

Revising the Draft Action Plan

The FDS serves as a framework for consistency to help agencies address the many laws and regulations that govern the use and management of data. The 2020 Action Plan specifies measurable actions that agencies will take during the first year of implementing the strategy, each of which incorporates one or more of the 40 Practices outlined in the strategy. The Action Plan is designed to be cross-cutting, to align with ongoing Federal Government programs and policies, to complement statutory requirements, and to support Federal agencies in fulfilling a wide array of requirements.

On behalf of the FDS team, the Department of Commerce published a RFC in the Federal Register on October 16, 2018. Among other things, the RFC asked the public to provide specific Actions that should be associated with a particular FDS Practice. Comments were also submitted through the FDS website. There were 95 unique commenters, including authors affiliated with government agencies, academics, private businesses, and individuals. The process generated 68 comments on Actions, which provided initial information to support drafting the 2020 Action Plan.

On June 4, 2019, the Department of Commerce published another RFC in the Federal Register requesting comments on the draft Action Plan. Again, comments were also accepted through the FDS website. In response, 140 unique commenters submitted feedback, including individuals and those from government, academia, and business. In addition, 23 stakeholders offered comments at a Federal Forum on June 25, with 220 attendees. Additionally, 43 stakeholders offered comments at a Public Forum on July 8, with 165 attendees.

Commenters were largely supportive of the overall Strategy and draft Action Plan. Commenters encouraged continual engagement with stakeholders during implementation of the initial Action Plan and in the development of subsequent annual Action Plans. Feedback from stakeholders also emphasized critical issues to be addressed by the strategy during the first year of implementation and in future years, such as the importance of enhancing data literacy across the Federal workforce, the necessity of assessing data quality and generating comprehensive data inventories in order to make data more discoverable, the adoption of community data standards, and the role of agency culture in supporting efforts to leverage data as a strategic asset within Federal agencies.

Many commenters provided feedback on the 16 Actions included in the draft Action Plan, identifying opportunities for clarification and suggesting additional Actions to address identified gaps. The valuable feedback provided by Federal and public stakeholders has shaped revisions for the final 2020 Action Plan. The final Action Plan offers additional context, clarity, and detail. The 16 original Actions were reorganized and four additional Actions were added based on stakeholder feedback. The final 2020 Action Plan features a new forward, an expanded introduction, more detailed descriptions of the Actions, and discussion of the role of future Action Plans.

Highlights of the changes include:

- **Renaming of Action categories and additional descriptions:** To more clearly communicate the meaning of Action categories, the category titles were revised. The

team also added more detailed descriptions of each Action category and explained how they fit together.

- o The Agency category naming convention did not change.
- o The Community category was revised to Community of Practice.
- o The Shared Actions category was revised to Shared Solution Actions.

- **Reference to a resource repository:** Throughout the 2020 Action Plan, the team references additional resources located in the online repository to support implementation of the 2020 Action Plan.

- **Reorganization of the 16 original Actions:** The Actions have been reorganized to lead with the Agency Actions, as agencies are a primary audience. Some reordering of Actions has taken place within categories, as well, in response to public comment.

- **Addition of four new Actions:** Due to stakeholder feedback, four new Actions have been added to the Action Plan, resulting in a total of 20 Actions:
  - o Agency Action 6: Publish and Update Data Inventories
  - o Community of Practice Action 7: Launch a Federal Chief Data Officer Council
  - o Shared Solution Action 19: Develop Data Quality Measuring and Reporting Guidance
  - o Shared Solution Action 20: Develop a Data Standards Repository

- **Revised descriptions of Agency Actions:** The descriptions were revised to provide more clarity and consistency in the descriptions, including motivation and alignment with related laws or policies, resources available to support implementation, and updated performance metrics, timelines, and responsible parties.

- **Revised descriptions of Community of Practice Actions:** The descriptions were revised to include the current status of any work and proposed approach for completion, expected impact on agencies not currently involved, contact information for pursuing additional information about the effort, and updated performance metrics, timelines, and responsible parties.

- **Revised descriptions of Shared Solution Actions:** The descriptions were revised to provide additional details about the effort and current implementation status, alignment with other requirements and priorities, links for additional information, and updated performance metrics, timelines, and responsible parties.

Conclusion

Federal data has great potential to improve the way government delivers services, to inform research, and to catalyze innovation and grow the economy. The views of stakeholders were essential for ensuring that the strategy fully leverages Federal data to provide quality services for the American people, add value for business, and increase government effectiveness and transparency while maintaining data security and preserving privacy and confidentiality.

The development of the strategy has required working across government silos, touching the many agencies that manage information and steward data. Agency input from across the statistical community, mission-focused communities, and mission-support communities was necessary to ensure that the strategy captured to the wide range of data produced by the Federal Government.

In addition, the strategy has incorporated the insights of all types of stakeholders outside of government: businesses with experience and industry expertise in solving data challenges, non-profits that use the data to deliver services and improve lives, researchers who use data or pioneer cutting-edge new data science techniques, state, local, and tribal governments, and private individuals.

Stakeholder feedback was a critical ingredient for the development of the FDS, and the FDS development team is indebted to the many stakeholders who contributed their time and expertise to this endeavor.