

Practices for Leveraging Data as a Strategic Asset

The Federal Data Strategy offers a balanced and holistic approaches to deriving value from the entire Federal Government data asset portfolio while protecting security, privacy, and confidentiality and addressing lifecycle management, maturity models, risk/utility models, tiered access, and secondary data use.

These following Practices are designed to inform agency actions on a regular basis, to be continually relevant, and to be sufficiently general so as to broadly apply at all federal agencies and across all missions. The Practices represent aspirational goals that, when fully realized, will continually challenge and guide agencies, practitioners, and policymakers to improve the government's approach to data stewardship and the leveraging of data to create value.

The Practices are organized in three categories that reflect the importance of tailoring the management of data to the uses of the data, such as answering questions critical to the Federal Government or meeting stakeholder needs. By prioritizing uses of the data, the Federal Government can derive more value from otherwise unanticipated or secondary uses of data assets and more strategically execute data management improvements. Specifically, the Practice categories are:

- *Building a Culture that Values Data and Promotes Public Use (Practices 1-10)*
- *Governing, Managing, and Protecting Data (Practices 11-26)*
- *Promoting Efficient and Appropriate Data Use (Practices 27-40)*

The importance of protecting individual privacy is integrated and emphasized throughout the Practices.

Building a Culture that Values Data and Promotes Public Use

Practices 1-10 derive value by articulating data uses for agency decision-making and accountability and supporting commercialization, innovation, and public use. To improve data management, agencies should consider potential uses of data and the benefits of those uses for answering key agency questions and meeting stakeholder needs. To derive value from these potential uses, agencies need leadership champions, management buy-in, and staff capacity to conduct the data driven decision-making cycle that prioritizes the informative value of data. When using data to answer key questions and address stakeholder needs, agencies should use data sources that are the most fit for the particular purpose. When allocating resources, agencies should prioritize data that identifies problems, informs solutions, and provides transparency for results delivered. Agencies shall:

1. **Identify Data Needs to Answer Key Agency Questions:** Use the learning agenda¹ process to identify and prioritize the agency's key questions and the data needed to answer them.
2. **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.

¹ Also known as evidence-building plans, such as in the Foundations for Evidence-based Policymaking Act of 2018.

3. **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.
4. **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.
5. **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.
6. **Convey Insights from Data:** Use a range of communication tools and techniques to effectively present insights from data to a broad set of audiences.
7. **Use Data to Increase Accountability:** Align operational and regulatory data inputs with performance measures and other outputs to help the public to understand the results of federal investments and to support informed decision-making and rule-making.
8. **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.
9. **Connect Data Functions Across Agencies:** Establish communities of practice for common agency data functions (e.g. data management, access, analytics, informatics, and user support) to promote efficiency, collaboration, and coordination.
10. **Provide Resources Explicitly to Leverage Data Assets:** Ensure that sufficient human and financial resources are available to support data driven agency decision-making, accountability and the ability to spur commercialization, innovation, and public use.

Governing, Managing, and Protecting Data

Practices 11-26 derive value from data by bringing leaders with diverse perspectives and expertise together to plan for using the data appropriately and responsibly. A data governance structure helps agencies use data to answer important questions while meeting legal and ethical requirements essential to maintaining public trust, including protecting privacy and ensuring confidentiality. Agency questions and user needs should drive specific governance, management, and data protection priorities. Data governance and management also allow agencies to assess data quality and the agency's capacity to acquire, manage, protect and use data to address mission priorities, as well as to prioritize data investments. A broad spectrum of leaders and skill sets within and across agencies will be key to successful implementation of these Practices, and inter-agency collaboration will be essential for consistency across the government. Agencies shall:

11. **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.

12. **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 to maintain public trust and safeguard privacy.
13. **Protect Data Integrity:** Emphasize state-of-the-art data security as part of 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.
14. **Convey Data Authenticity:** Disseminate data sets such that their authenticity is discoverable and verifiable by users throughout the information lifecycle, consistent with open data practices, and encourage appropriate attribution from users.
15. **Assess Maturity:** Evaluate the maturity of all aspects of agency data capabilities to inform priorities for strategic resource investment.
16. **Inventory Data Assets:** Maintain an inventory of data assets with sufficient completeness, quality, and metadata to facilitate discovery and collaboration in support of answering key agency questions and meeting stakeholder needs.
17. **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.
18. **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.
19. **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.
20. **Leverage Data Standards:** Adopt or adapt, create as needed, and implement data standards within relevant communities of interest to maximize data quality and facilitate use, access, sharing, and interoperability.
21. **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.
22. **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 needs.
23. **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.
24. **Enhance Data Preservation:** Preserve federal data in accordance with applicable law, regulation, policy, approved schedules, and mission relevance.

25. **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.
26. **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.

Promoting Efficient and Appropriate Data Use

Practices 27-40 derive value from data by providing access to data resources, promoting appropriate use of data resources, and providing guidance on approaches for data augmentation. Access to data resources includes Practices related to sharing data assets, including open data and tiered access to protected data, disclosure review, and interoperability of federal data. Use of data resources includes Practices related to data documentation, emerging technologies for protecting confidential data, and federal data expertise. Data augmentation includes Practices related to data quality, metadata standards, and secure data linkage. Agency leadership and practitioners within programs will be key to these activities, many of which involve working across agencies and with experts across industry. Agencies shall:

27. **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.
28. **Align Quality with Intended Use:** Data likely to inform important public policy or private sector decisions must be of appropriate utility, integrity, and objectivity.
29. **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.
30. **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.
31. **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.
32. **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.
33. **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.

34. **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.
35. **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.
36. **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.
37. **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.
38. **Leverage Collaborative Computing Platforms:** Periodically review and optimize the use of modern collaborative computing platforms to minimize costs, improve performance, and increase use.
39. **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.
40. **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.