



STRENGTHENING CAPABILITIES FOR DATA ANALYTICS

A Checklist for Data Managers in Federal Agencies

This checklist is generalized from advice in *Strengthening Data Science Methods for Department of Defense Personnel and Readiness Missions*. Download the full report at nap.edu/23670.

Develop a data and analytics framework

- ✓ Determine appropriateness of the data for the analytic tasks at hand
- ✓ Anticipate issues in the reuse of operational data for analytic purposes
- ✓ Balance data objectives with both short- and long-term needs

Improve data collection and sharing

- ✓ Streamline business practices to simplify data merging and linking
- ✓ Evaluate appropriate privacy, hardware, and software architectures
- ✓ Promote sharing of existing statistical methods, tools, and products
- ✓ Create new statistical methods, tools, and products as needed
- ✓ Consider alternative data sources to gain deeper insight
- ✓ Foster partnerships with other data-rich agencies and organizations

Re-evaluate Institutional Review Board processes

- ✓ Allow timely access to data and prompt response to policy questions
- ✓ Appraise the use of differential privacy methods for personally identifiable information

Adapt privacy and governance structures

- ✓ Review the Confidential Information Protection and Statistical Efficiency Act
<https://www.bls.gov/bls/cipsea.pdf>
- ✓ Examine Fair Information Practice Principles
<https://www.ftc.gov/reports/privacy-online-report-congress>

Implement analytic methods

- ✓ Focus on long-term problems that may be addressed with data analytics
- ✓ Assess descriptive, predictive, and prescriptive analytical approaches
- ✓ Investigate problem-solving approaches from the private sector
- ✓ Disseminate best practices across the agency

Conduct carefully structured experiments

- ✓ Understand causes and effects of agency policies
- ✓ Justify costs associated with policy-making decisions

Enhance data science education for personnel

- ✓ Provide short courses in specific techniques or overview seminars
- ✓ Encourage enrollment in external educational programs
- ✓ Support the use of data skills and methods for improved decision making