

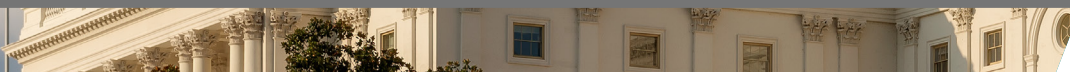


Data Skills
Training Program

IMPLEMENTATION TOOLKIT

Federal Chief Data Officers (CDO) Council
Data Skills & Workforce Development Working Group

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Introduction

The Data Skills Training Program Implementation Toolkit is designed to provide both small and large agencies with information to develop their own data skills training programs. Reference to a data skills training program in this Toolkit is defined as any continuous learning program available to federal employees involving data skills. The information provided will serve as a roadmap to the design, implementation, and administration of federal data skills training programs as agencies address their **Federal Data Strategy's Agency Action 4** gap-closing strategy training component. This Toolkit has 7 key steps to help agencies implement their own training programs and navigate implementation roadblocks they might encounter.

To develop this Toolkit, eleven federal agencies and inter-agency council groups with data skills training programs were interviewed to capture their implementation journey, including lessons learned and best practices. The interviews also captured challenges, key stakeholders, and future strategies for the eleven programs. Information from these interviews were shared in the form of eleven case studies developed by the Federal Chief Data Officers (CDO) Council's Data Skills & Workforce Development Working Group. The **case studies** can be found on resources.data.gov.

Authorship

This Toolkit was produced by the CDO Council's Data Skills & Workforce Development Working Group with guidance from the CDO Council Executive Committee and support from REI Systems, Inc., and Incapsulate, LLC.

Implementation Steps

1. **Conduct an Environmental Scan and Data Skills Needs Assessment.** Before you begin developing a training program approach and plan, it is important to first establish a baseline of key data skills and training needs for your agency. This includes understanding the landscape of existing training opportunities, both internally and externally, and identifying internal stakeholders that can provide additional insights on data skills training gaps and issues within the agency.
2. **Develop a Governance Structure with Key Stakeholders and Partners.** Creating a governance structure to provide oversight and guidance can benefit the design, planning, and implementation of your program. A variety of governance models can provide value including steering committees with subject matter experts (SMEs) or executive decision makers, and more formal interagency council groups.
3. **Plan for an Appropriate Level of Funding for Your Data Skills Training Program.** Implementing a data skills training program will require funding for staffing resources, services with a training provider or commercial vendor, and required software and tools needed for the training. It is important to start your budget planning to secure funding for the size and scope determined for your training program.
4. **Start Your Federal Acquisition Planning and Procurement Process.** Once your training program has plans for securing funding and you have the appropriate stakeholders involved, you must start the acquisition planning process for any goods or services needed to get your data skills training program up and running. Some similar planning activities may have begun in Step 3.

5. **Design the Key Components of Your Data Skills Training Program.** Once you have developed an understanding of the current data skills training environment at your agency and have made preparations for governance, funding, and procurement, it is important to begin designing the key components of your data skills training program. There are many factors and unique design choices to consider when developing a training program.
6. **Develop a Strategic Communications Campaign to Drive Engagement and Gain Multiple Stakeholder Buy-In.** A communications campaign is important for building awareness and establishing stakeholder buy-in when implementing a data skills training program. This includes developing strategic messaging, introducing targeted events, and marketing the program effectively to agency leadership, agency employees, and program participants.
7. **Pilot Your Data Skills Training Program and Replicate it on a Full-Scale Based on the Learnings.** It is encouraged to pilot your data skills training program, including testing any courses provided by a vendor that are under consideration before implementation on a full-scale.

STEP 1

Conduct an Environmental Scan and Data Skills Needs Assessment

Before you begin developing a training program approach and plan, it is important to first establish a baseline of key data skills and training needs for your agency. This includes identifying internal stakeholders that can provide additional insights on data skills training gaps and issues within the agency and understanding the landscape of existing training opportunities, both internally and externally. Per [Agency Action 4](#), all CFO Act agencies were required to perform a capacity assessment to assess the coverage, quality, methods, effectiveness, of current staff data literacy and data skills by July 31, 2020; this assessment may be a valuable resource when considering data skills training opportunities at your agency.

Target Output: Data skills gaps within the agency and organizational opportunities based on existing data and staff perceptions to inform your training approach(es).

An environmental scan analyzes and evaluates the strategic environment facing your agency, collects information to examine emerging trends and opportunities, and provides insights on external changes impacting the organization. Example environmental scan methods include:

Tool	Description	When to Use
PESTLE Analysis	An analysis of relevant political, economic, social, technological, legal, and environmental factors that may impact your strategy.	When an understanding of the bigger picture/macro environment is needed to drive and refine your strategy.
Secondary Data/Literature Review	A review of existing reports, data, and publications to increase your awareness and knowledge of emerging trends and important issues.	When a deeper understanding of current research or the priorities of other stakeholders is beneficial.
Strategy Canvas	A tool to identify factors that drive success in data science and technology and how you differentiate from similar programs.	When you have a good understanding of external factors and need to differentiate your offerings from other agencies.

Tool	Description	When to Use
SWOT/ SOAR Analysis	An analysis of strengths, weaknesses, opportunities, and threats (or strengths, opportunities, aspirations, and results) facing your agency.	When a group needs a single tool to account for key external and internal factors to drive your program.

Adapted from “Environmental Scan & Needs Assessment,” by Colorado State University.

A data skills needs assessment is the process for understanding data skills training needs within your agency and how to meet them. **Agency Action 4** calls out four major components that your needs assessment should address:

1. Identifying critical data skills needed for the agency
2. Assessing the current staff capacity for those data skills
3. Performing a data skills gap analysis to prioritize the agency’s needs
4. Identifying and executing approaches to fill those needs

Example needs assessment methods include:

Tool	Description	When to Use
Focus Groups	A group interview exercise in which participants share perspectives with one another and a moderator.	When rich qualitative data are needed from targeted audiences to better understand issues, opportunities, and barriers.
Key Stakeholder Interviews	Interviews of key stakeholders thought to have critical knowledge and insight on your issue.	When rich qualitative data are needed from targeted audiences to better understand issues, opportunities, and barriers.
Surveys	Questionnaires delivered to targeted or random populations.	When you want to understand the scope/breadth of an issue;

Adapted from “Environmental Scan & Needs Assessment,” by Colorado State University.

Key Stakeholders

1. **Executive Leadership.** Provides a leadership lens on data skills training needs at the organizational level.

2. **Agency Employees.** Provides the perspective of the typical data skills learner and insights on where they want to invest their time at the individual level.
3. **Agency Human Resource (HR) Office.** Provides alignment with ongoing human capital management efforts as it relates to agency workforce planning and training.
4. **Contract Support (optional).** Performs the assessments and analysis.

Checklist

- Define a clear program purpose and goal(s) to help determine who your stakeholders are.
- Identify the size and scope of your training needs in order to determine the appropriate budget for your program.
- Dedicate resources to determine who can take the time to lead the design, data collection, data analysis, and reporting.
- Engage with various stakeholder groups, including executive leadership, to help design a more informed and comprehensive training approach.
- Factor in enough time to conduct the data skills needs assessment to prevent delays on any later milestones in your program plan and timeline.
- Use surveys and other qualitative and quantitative research methods to collect information from your stakeholders.
- Fine-tune your program purpose and goals based on results of the data skills needs assessment and identify your training objectives and outcomes.
- Develop a training roadmap in consultation with HR that outlines data skills competencies that emerged from the assessments as important.

Key Questions

1. Is your agency a CFO Act agency? If so, a data literacy and skills assessment may have already been completed by your agency. You may still want to further assess the available training opportunities or gather additional data, but this assessment could be a great starting point.
2. Will you require contract support to perform your assessments?
3. Who are your stakeholders and why are they important?
4. Have you evaluated similar programs internally and externally to the agency to understand what data skills training options already exist and what has worked or not worked from previous efforts?
5. What research method(s) will you use?
6. Does your assessment collect evidence needed for making future decisions?
7. Does your assessment gauge your workforces' maturity in data skills?

Helpful Resources

- » Example [agency readiness survey framework from NLM](#)

STEP 2 —

Develop a Governance Structure with Key Stakeholders and Partners

Creating a governance structure to provide oversight and guidance can benefit the design, planning, and implementation of your program. A variety of governance models can provide value including steering committees with SMEs or executive decision makers, and more formal interagency council groups.

Target Output: Oversight and approval through multiple phases of the implementation process. Building trust between program staff and key decision makers will prove valuable when their input and approval is needed.

Governing bodies can help provide a unique lens when building out a data skills training program at your agency. These governing bodies can help align your data skills training program to internal and external strategic priorities, including the principles and practices of the Federal Data Strategy. This will help to align your program processes, curriculum, and evaluation methods to the larger federal workforce.

Key Stakeholders

1. **Training Program Staff.** Identifies proper governance structure, and coordinates efforts between the decision makers and various program staff.
2. **Executive Leadership.** Provides oversight to ensure programs are meeting standards set by the agency, and the Federal Data Strategy as applicable.
3. **Agency Employees.** Depending on the type of governance structure identified, engage agency SMEs who can provide key insights to help build out the program.
4. **Training Provider or Vendor (optional).** Accompanies program staff to governance meetings, provides insights on the specifics of their services.

Checklist

- Use findings from your environmental scan and data skills needs assessment to identify what type of executive level and agency support is needed.

- Consider a blended approach to your governance model with both executive and agency SMEs providing feedback and advice.
- Clearly outline a program timeline and consider your priorities to figure out if time may serve as a constraint in engaging additional executive level groups or SMEs.
- Equip your governance body with data to help them benchmark initial goals with results from pre- and post-program evaluations.
- Establish periodic status meetings where program staff can provide updates to the governance body and involve them in the decision making.
- Have early conversations about future plans for the training program to help identify key needs requiring approval and who those approvers will be, after a pilot is complete.

Key Questions

1. Consider the agency organizational environment, what type of governance boards, councils or strategy teams are available and appropriate to engage?
2. If executive bodies are already engaged, can communication with these groups be better organized and intentional?
3. Would a federal sponsor or agency-level leader be a better resource to consult on a periodic basis instead of an organized decision-making group?
4. If your program resides somewhere other than the Office of the CDO, how best can you collaborate with your agency CDO on your training program and data skills development overall?

STEP 3 —

Plan for an Appropriate Level of Funding for Your Data Skills Training Program

Implementing a data skills training program will require funding for staffing resources, services with a commercial vendor or training provider, and required software and tools needed for the training. It is important to start your budget planning to secure funding for the size and scope determined for your training program.

Target Output: Initial funding for a pilot and/or ongoing program funding as needed.

A data skills training program pilot is a small-scale evaluation that takes place over a short period of time designed to test your new training approach and identify any deficiencies before substantial resources are committed.

A full-scale data skills training program should factor in learnings from a pilot, if one was done, for replication on a larger scale, including necessary adjustments to resource allocations and budget estimates for future budget requests.

Key Stakeholders

1. **Appropriate Financial Decision-Maker(s).** Advocates and provides funding for your data skills training program.
2. **Agency Contracting Office (optional).** Identifies a contracting officer representative (COR) to facilitate the acquisition process, including vendor research, for any goods or services your data skills training program may require.

Checklist

- Develop a business case for the appropriate financial decision-maker(s) (e.g., agency leadership, Chief Financial Officer (CFO), HR, CDO, contracting office, etc.) to gain buy-in and approval for your funding request.
- Conduct market research on available data skills training providers and commercial vendors, including existing providers contracted at other agencies that may be available through interagency funds transfers.

- Identify all possible funding sources, such as your HR office, the Office of Management and Budget (OMB), or interagency council groups (e.g., Chief Information Officers Council (CIOOC) or CDO Council).
- Allocate future funding for your data skills training program in your CDO budget if your agency has one.

Key Questions

1. How much funding is needed for your data skills training program?
2. How many support resources do you have?
3. Does your program require additional resource accommodations?
4. Does your program require the support of a training provider or vendor to offer this training, or s it have the capacity to offer it in-house?
5. Who will cover the employee's cost for the training?
6. Do you understand your agency's funding practices to make a reasonable budget estimate?
7. Do you understand how interagency funds transfers work if that is an option you seek to explore?
8. How long will you need to pilot your data skills training program to capture sufficient data?

Helpful Resources

- » See [Data Skills Catalog](#) for list of example federal training programs
- » See [Case Studies](#) for additional examples of training programs at federal agencies

STEP 4 —

Start Your Federal Acquisition Planning and Procurement Process

Once your training program has plans for securing funding and you have the appropriate stakeholders involved, you must start the acquisition planning process for any goods or services needed to get your data skills training program up and running. Some similar planning activities may have begun in Step 3.

Target Output: Procure any goods or services needed to meet the needs of the training program and approach.

Your acquisition planning process may include pre-solicitation, solicitation and evaluation, contract award, and contract execution and administration activities for any required training services. You may also procure software, tools, and other goods needed for your data skills training program which may not require undergoing a full cycle acquisition but instead involves collaboration with key stakeholders within your agency such as your Information Technology (IT) office and/or other financial decision-making groups.

Key Stakeholders

1. **Senior Leadership.** Stays informed on any procurement needs for your data skills training program.
2. **Agency Office of the Chief Information Officer (OCIO).** Facilitates access to required IT software and tools and/or vendor integration with existing platforms or agency services.
3. **Agency Contracting Office COR (optional).** Facilitate the acquisition and procurement process.
4. **Training Provider or Vendor (optional).** Provides information about their services to market research and proposal requests from the agency.

Checklist

- Meet with key stakeholders to discuss your training approach, present requests for help, and ensure ongoing communication of pertinent information and advice.
- Continue engaging with your COR to begin the acquisition planning process, including vendor

research, for any goods or services needed for your data skills training program.

- Prepare and submit a request for information (RFI) to educate yourself on the marketplace for data skills training providers and vendors, if your program requires assistance from an outside service provider and you do not have one already identified.
- Evaluate responses from the RFI to identify your training requirements and determine the scope of work required from a service provider.
- Learn about the IT approval process within your agency for procuring new or gaining access to existing software and tools needed for your data skills training program.
- Work with your COR to determine the best contract vehicle to procure any identified services with a training provider or vendor and develop a timeline for your acquisition process lifecycle.
- Identify a training provider or vendor through the proposal process chosen (e.g., Request for Proposal (RFP), interagency agreement (IAA), etc.).
- Once identified, develop a service level agreement with your selected service provider or vendor to clearly define the type of program support and communication needed during the period of performance.

Key Questions

1. What are your training needs and requirements for administering your data skills training program?
2. How long will services be needed with a provider?
3. What contract vehicle will you use to acquire your needed training services?
4. Have you developed selection criteria for identifying the best data skills training provider or vendor?
5. Have you set up preliminary demonstrations with any third-party or commercial vendor training products? Are their system components approved by your OCIO?
6. Are there existing IT software and tools available that can be leveraged for your data skills training program?
7. How long will it take to gain access to required IT software and tools?
8. What IT environment will be used if you choose online learning services through a vendor?

Helpful Resources

- » Example [agency Statement of Work from HHS](#)
- » Example [agency Statement of Objectives from Air Force](#)

STEP 5 —

Design the Key Components of Your Data Skills Training Program

Once you have developed an understanding of the current data skills training environment at your agency and have made preparations for governance, funding, and procurement, it is important to begin designing the key components of your data skills training program. There are many factors and unique design choices to consider when developing a training program.

Target Output: Comprehensive program design to address data skills gaps.

Based on Agency Action 4, agencies do not have specific requirements for how they have to address data skills gaps, so there are many possible ways in which agencies may increase their staff data skills capacity. The suggested options from the [Federal Data Strategy](#) include:

- » New analysis or other software tools
- » Easy-to-use dashboards
- » Additional training and educational opportunities
- » On-the-job rotational learning experiences
- » Participation in data-related communities of practice
- » Introducing hiring and retention strategies

This Step will primarily focus on designing data skills training and educational opportunities, and this process is likely to vary considerably based on the type of training approach, the specific data skills that will be trained, and the resources committed to the program.

Key Stakeholders

1. **Agency Leadership.** Provides guidance on key aspects of the design of the data skills training program.
2. **Agency Managers and Supervisors.** Provides ongoing support to employees who are participating in the program and enables employees to allocate their time appropriately.
3. **Agency HR Office.** Provides alignment with ongoing human capital management efforts as it relates to the data skills competencies and curriculum for the program.

4. **Agency IT Office.** Provides logistical and technological support for participants in the program and enables access to necessary data or software essential to the program.
5. **Training Provider or Vendor (optional).** Fills a variety of roles in the program design, such as curriculum design, instruction, providing a learning platform, and conducting the program evaluation.

Checklist

Determine Program Format

- Determine whether the program format will include online learning, in-person learning, or a blended learning approach.
 - For online learning, determine whether the training will be curated on internal or external learning platforms.
 - For in-person learning, determine if the instructor will be a current employee of the agency or provided by an outside training provider.
 - For blended learning, consider the balance of which aspects of the training will be conducted online versus in-person.

Determine Program Scale

- Based on the amount of funding secured, determine the approximate number of participants that can be trained via the chosen training format and the duration of your training program in terms of total weeks and hours per week.
- Consider whether your budget allows the agency to fully cover the cost of the program, or if there will be an employee contribution, which can be common with training programs that provide technical certifications upon completion.

Develop an Application or Registration Process

- If your data skills training program will have limited availability based on a competitive application process, develop an application process including any minimum qualifications, such as employee level or status, prerequisite data skills or knowledge, and availability to commit time to the program.
- Consider a nomination process for participant applications, which allows agency leadership and supervisors to highlight employees or projects.
- If your data skills training program will have limited availability and can only accept participants on a first come first serve basis, set up a method for interested employees to register.

Select Program Participants

- Develop an application scoring rubric to evaluate employee applications and utilize this rubric to select applicants for interviews and/or participation in the training program.
- Consider setting up a waitlist to draw candidates from if selected candidates are unable to participate in the training program.
- If your data skills training program will follow a cohort-style format, consider grouping participants into small groups of between three and five participants to enable optimal peer-to-

peer learning and interaction. Include peer-to-peer learning and networking opportunities in the training program.

Design Program Curriculum

- Engage with HR to develop a data skills competencies framework and determine how the data skills training program may apply to key positions within the agency.
- Design a curriculum for your data skills training program that will address identified data skills gaps and can realistically be accomplished during the duration of the program. This may involve collaboration with a training provider or vendor if your training program includes outside services.
- Engage stakeholders such as agency leadership and SMEs to identify the specific training concepts, courses, or modules that should be included in the curriculum.
- Consider including a capstone project as a component of the curriculum to enable hands-on learning and for participants to have a tangible output upon completion of the program.
- Additionally, consider if any certifications may be obtained through completion of the program or offer a certificate upon completion of the program.
- Identify current resources that may be utilized to fulfill the designed curriculum or identify a vendor that is able to fulfill the curriculum.

Determine a Program Evaluation Methodology

- Establish a pre- and post-program evaluation process such as assessments, interviews, or surveys to solicit feedback and gather data on the program; consider an evaluation framework/model for analyzing program results such as the Kirkpatrick model, an industry method for evaluating the results of training and learning programs.
- Consider implementing office hours for participants to receive just-in-time feedback and consultation from instructors and/or study groups for participants to review and collaborate on their coursework with one another.
- Consider ways to evaluate whether participants utilize their newly learned data skills in their work after completion of the program, such as by following up with participants or supervisors.

Set up the Program

- Consider what resources are required to begin your data skills training program and ensure the logistical arrangements are in place prior to the beginning of the training program.
 - For online learning, test the online system and ensure it is accessible on your agency's devices and network, and ensure all participants have the necessary logins to begin their participation in the training program.
 - For in-person learning, ensure there is a space reserved for the instruction sessions and ensure this space has the necessary furniture, electronics, and other important components. Additionally, ensure participants and the instructors can access the space since they may require an escort depending on your agency's security protocols.

Conclude the Program

- Consider hosting an end of program celebration for participants to present their Capstone Projects, if they have one, and celebrate their completion of the program. Inviting a wider audience to the Capstone presentations can give participants exposure to different stakeholders

and the opportunity to practice or sharpen their presentation skills.

- ❑ Consider what happens next for participants after they complete the training program and consider building a Community of Practice with program alumni to foster a continued learning environment and avenue to demonstrate impact.
- ❑ Utilize your evaluation methodology to understand the results of your data skills training program and utilize the feedback you receive to adjust subsequent implementations of your training program.
- ❑ For in-person or blended learning, consider incorporating a celebration event to reward participants for their participation in the training program and highlight successes from the training program.

Key Questions

1. If providing the training in-house, what data skills do you want to teach and to whom?
2. Which format is best for your agency and your data skills training program, online, in-person, or blended learning?
3. How does this training program fit in with any other training opportunities offered by your agency and can it be integrated with any of your agency's current initiatives?
4. Are there other similar programs both internal or external to your agency that you can collaborate with to leverage existing training materials (i.e., a course catalog) to develop your curriculum?
5. How will the results of your data skills training program be evaluated?
6. Is your data skills training program part-time or full-time? For part-time programs, will employees be able to devote time to the program without interfering with their full-time duties? For full-time programs, how will employees manage their transition back to their full-time duties?
7. Is your training program competitive or non-competitive? Who will evaluate applications and select the participants if it is competitive, and how will you ensure the evaluation process is fair and merit-based?

Helpful Resources

- » Example [Case Studies](#) for each training format:
 - » Online learning (NSF, Treasury, and AOUSC)
 - » In-person learning (Air Force)
 - » Blended learning (HHS, Census, NLM, CDC, DOS/FSI, and CIO Council)
- » Example [Skills Development Profiles from NLM](#)
- » Example [Individual Training Plans from NLM](#)
- » Example [Course Catalog from NLM](#)
- » Example [agency program design playbook from Census](#)
- » Example [agency program design toolkit from HHS](#)
- » Example [agency application selection process from NSF](#)
- » Example [do it yourself \(DIY\) guide for agencies from the CIO Council](#)

STEP 6 —

Develop a Strategic Communications Campaign to Drive Engagement and Gain Multiple Stakeholder Buy-In

A communications campaign is important for building awareness and establishing stakeholder buy-in when implementing a data skills training program. This includes developing strategic messaging, introducing targeted events, and marketing the program effectively to agency leadership, agency employees, and program participants.

Target Output: Established understanding in the value of data skills training and its connection to the agency's mission at the organizational and individual level.

Implementing a data skills training program requires understanding from agency employees on the importance of your effort and how it will advance the agency goals and mission. An effective communications campaign can create better information flow from program staff to all levels of the agency.

A few example strategic communication activities and methods include:

Informational Sessions

- » Holding informational sessions will formally introduce your data skills training program to agency staff. These program meetings serve to elevate employee understanding in the importance of data skills training and how it relates to agency goals and individual job duties, as well as to drive interest and participation in the program.

Website Marketing

- » Publicizing the program on your agency website through blogs and articles documenting participants' journeys can serve as a marketing tool to the public and highlight the benefits of the program. Additionally, creating a space online for program information to sit through an internal "Wiki" type environment can also help guide employees in identifying information on the program.

Targeted Events

- » **Executive Briefings:** Meetings with agency leadership to relay key messages on program impact, and to continue building relationships with partners and advocates of the program.
- » **Supervisor Meetings:** Supervisor-only introductory meetings and check-ins with program staff can help develop a baseline understanding of how they can support employees as they participate in the training. This also fosters engagement with supervisors and helps gain their buy-in.
- » **Concluding Events:** These events give program staff opportunities to present any collected impact data that communicates the value of the training program to the agency. If your program includes a celebratory event, be intentional about your guest list, inviting agency leadership or future program participants can relay the impact strategically.

Key Stakeholders

1. **Training Program Staff.** Develops communications materials for the data skills training program and oversees key program meetings.
2. **Agency Communications Office.** Supports program staff with marketing information on the agency website and other controlled spaces.
3. **Training Provider or Vendor (optional).** Provides insights to develop proper messaging tactics to market the program.

Checklist

- Analyze communications campaigns from previous agency data skills training programs and look for lessons learned.
- Develop key messaging about the program's goals and objectives and how they connect to your agency's mission tailored to each stakeholder audience.
- Identify communications and outreach activities to relay key program messages to stakeholders throughout the program implementation process.
- Develop marketing and promotional materials to build awareness and share information about your data skills training program.
 - Avoid jargon and use short, concise language to simplify data science concepts in communications materials (flyers, articles, presentations).
 - Use impact data from surveys administered throughout the program lifecycle to use in marketing and promotional materials in future years.
- Encourage executive or federal sponsors to pen articles or blog posts for the agency's website.

Key Questions

1. What sets your data skills training program apart from other similar training programs?
2. What type of data skills is your training program prioritizing?
3. What program milestones do you want to convey?

4. What is your agency's culture on embracing new ideas and workplace transformation initiatives?
5. What key stakeholders do you need to engage and want to collaborate with to market your program?

Helpful Resources

- » Example [agency strategic communications material from NLM](#)
- » Example [agency one-pager marketing material from Census](#)

STEP 7

Pilot Your Data Skills Training Program and Replicate it on a Broad-Scale Based on the Learnings

It is encouraged to pilot your data skills training program, including testing any courses provided by a vendor that are under consideration before implementation on a full-scale.

Target Output: Useful data and lessons learned from your pilot to consider when implementing a broad-scale data skills training program.

A pilot tests the effectiveness of your data skills training program and provides insight into the true scope of the program, including any time commitments required of participants. In summary, it allows you to see what is working and what is not. It will also help you determine whether your training approach is the best fit for your agency. The best way to measure the effectiveness of your pilot program is to develop performance measures. Below are a few example performance measurement frameworks:

Framework	Description
Balanced Scorecard	Calls for a set of metrics, with some from each of several categories to create a healthy tension (e.g., between efficiency and quality).
Objectives and Key Results (OKR)	Call for careful alignment, and “trickle-down” of measures from higher levels of an organization to lower levels.
LEAN/Six Sigma	Focuses on quality, process consistency, and customer perceptions - with six sigma meaning that defects should occur six standard deviations less often than if they were a random event.

Note: The frameworks above are not mutually exclusive and can work together. Sample measures include:

- » Financial (Cost & FTEs)
- » Efficiency (quantity / productivity)
- » Effectiveness (results, impact)
- » Quality
- » Customer Satisfaction
- » Innovation / Institutional Growth

Key Stakeholders

1. **Executive Leadership.** Remain informed of learnings from your data skills training pilot program as they emerge and planned changes for the future.
2. **Agency IT Office.** Supports employees' ongoing technology needs for participation in your data skills training pilot program.
3. **Agency Employees.** Provides pre- and post-participant feedback throughout the course of the data skills training program.
4. **Agency HR Office.** Stays informed about additional workforce insights gleaned from pilot program performance results and evaluations.
5. **Agency Contracting Office COR (optional).** Stays informed throughout the period of performance with your service provider or vendor.
6. **Training Provider or Vendor (optional).** Administers the training offering on behalf of the agency.

Checklist

- Develop ongoing performance metrics to monitor and report on a pilot program's progress and accomplishments.
- Leverage the participant feedback received from your data skills training program evaluation process to obtain additional workforce insights and learn about any deficiencies and use those learnings to inform changes to the program in the future.
- Communicate any data skills training pilot program outcomes and outputs, including impact data, with senior leadership and any other need to know stakeholders.
- Determine whether to continue the data skills training program beyond the pilot and if so, obtain authorization from senior leadership (or your financial decision maker).
- Work with your training provider or vendor to make any adjustments to the services being provided to administer your data skills training program beyond the pilot.
- Determine the ongoing needs of the training to sustain the program after the pilot, including but not limited to the target audience(s) in need for the training, and any new or existing data skills competencies to be expanded upon.

Key Questions

1. What performance indicators are you going to measure during the pilot and then on an ongoing basis?
2. Does your data skills training pilot program meet the needs of your employees?
3. Who are you going to pilot your data skills training program with (e.g., a few employees, a subset of the agency, etc.)?
4. Do you need to make any updates to your data skills training program objectives and outcomes based on the learnings from the pilot?
5. Do you understand the demand for the data skills training program?
6. What stakeholders need to be informed about future changes to your data skills training pilot program? Who do you need approval from to continue the program past the pilot?
7. Will you continue with the same training provider or vendor?
8. What enhancements are required to implement your program on a broader scale? How many resources are required?
9. How will you obtain funding on an ongoing basis? Do budget estimates need to change?

Recommendations

The following section presents long-term recommendations for assisting federal agencies with implementation of data skills training from a government-wide approach.

Facilitate additional CXO collaboration at agencies	The CDO Council should work in collaboration with the Chief Learning Officer’s (CLO) Council to develop a data skills competency framework for the federal workforce. This initiative can generate a blueprint for data skills performance excellence, building on the data roles and skills defined in the Data Skills Catalog .
Establish central funding for data skills training implementation	Securing ongoing funding may be a recurring challenge for agencies wanting to implement a data skills training program. This fund can be centrally managed by OMB or a designated agency.
Establish centralized data skills training	Significant economies of scale can be achieved through use of shared services. This capability could either be housed in an existing agency office with shared services management expertise or be managed by identifying “best in breed” data skills training programs at federal agencies and designating one or more as shared service providers.

Conclusion

This Toolkit has been developed through an analysis of successful data skills training programs at eleven different federal agencies and interagency council groups. For most of these programs, they had little or no prior experience with designing, implementing, and sustaining a workforce training program. At the time this Toolkit was written, most of the programs analyzed were implemented within the last year with no program being implemented more than five years ago. Based on the analysis of each program's implementation journey, lessons learned, and best practices, seven key components were identified as common among all the programs:

1. All agencies first developed an understanding of their learning environment, by conducting an environmental scan and/or data skills needs assessment with varying degrees of formality. This thoughtful analysis and evaluation proved to be a key factor in an agency's decision to offer a data skills training program and it often led agencies towards a specific type of program to implement.
2. Most agencies utilized a governance structure for oversight and guidance throughout the design, planning, and implementation of their training programs. Some of these governance structures were already present and helped to provide a pathway for starting a training program and others were created in the form of steering committees or executive and SME councils along with the new training programs.
3. All agencies had to secure funding to be able to offer a data skills training program. The costs for the variety of data skills training programs may vary considerably based on scale and scope, but around \$500-\$2,500 per learner may serve as a rough estimate. For most agencies, funds are allocated from the yearly budget after achieving buy-in, and agencies have increasingly been able to fund programs through the CDOs budget. Some agencies have been successful in securing multi-year funding in advance, while this is often one of the top ongoing goals for agencies.
4. Most, but not all, agencies procured some aspect of their training program from an external source, such as a contractor, vendor, or training provider. When choosing to procure from an external source, the agencies tended to identify a certain aspect of the training program to procure, such as assisting with strategy or evaluation, offering the training either online or in-person, or providing a learning platform.
5. All agencies designed their training programs, and three different formats were identified: online learning, in-person learning, and blended learning which combines aspects of both. The design of the program has a considerable impact on the program and there are specific details that must be considered and decided, such as the program scale, the target audience and associated application, registration, and selection processes, the program curriculum, evaluation methodologies, and all the necessary resources required for the program.
6. All agencies utilized communications strategies to drive engagement and stakeholder buy-in for their training programs. While these strategies varied considerably for different agencies and types of programs, most tended to involve a combination of informational sessions, marketing emails, development of a website or online presence, and targeted events with executives, supervisors, or potential program participants.
7. Finally, most agencies considered their first implementation of the program to be a pilot, and this was important for securing funding and agency buy-in. Through the pilots, agencies had specific goals in mind and were able to gather data and feedback to demonstrate the impact of the pilot program, while also being able to adjust the program as needed in the pilot phase.



If you have questions or would like more information about the case studies, contact cdocstaff@gsa.gov.



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